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Capstone Proposal

The production of electrical energy is of vital importance to society. It is imperative that enough energy be produced and distributed to meet demand at virtually all times in order to keep the modern workings of society going smoothly. However, it is undesirable to overproduce electricity as it is expensive to store it for later distribution especially in large quantities. To this end, the United States Energy Information Administration Maintains hourly electrical demand data as well as hourly data from prior forecasts of demand, net generation, and data concerning the courses of electrical energy.

1. Analyze from the U.S. Energy Information Administration
    a. Link: https://www.eia.gov/opendata/

The project is to create my own demand forecasting model using the U.S. EIA's hourly forecast data as a benchmark. Should I successfully create a forecast model that outperforms the provided forecasts data, it has clear application in reducing costs associated with producing excess electricity. The initial attempts at model production will be using standard time series analysis and regression techniques.

1. Problem Statement: Can a model be produced that outperforms the EIA's hourly forecasts data?
2. Context: Explained above
3. Criteria for Success: The developed model should have smaller mean squared error with 95% confidence
4. Scope of Solution Space: Any model that is fast enough to provide hourly forecasts is a potential solution to this problem.
5. Constraints: We are trying to predict and not influence demand for electrical energy
6. Stakeholder: Anyone that cares about energy usage, energy costs, or the environment
7. Data Sources: Currently just data available through the EIA's website. (link above)