Energy

REQUEST FOR PROPOSAL
RFP #: TS – F1.Final

TITLE: PJM Electric Load Forecasting
CLOSING DATE AND TIME: SEPTEMBER 22, 2023 @ 5:00 PM

Electric Load Forecast: TS – F1.Final

Background and Purpose

By responding to this Request for Proposal (RFP), the Proposer agrees that s/he has read and understood all documents within this RFP package.

Submission Details

Responders to this RFP should supply:

- A business report up to 5 pages (not including cover page or table of contents), including any supporting plots and tables.
- The commented code (in a separate file) used to produce the results.
- Both files should be uploaded to Moodle by September 22, 2023 @ 5:00 PM.

The report should address **all points described in the "Objective" section** below.

Objective

PJM is a regional transmission organization (RTO) that provides resources for the market of wholesale electricity in all or parts of 13 states and the District of Columbia (source: PJM.com). PJM, henceforth referred to as the client, would like to contract your services in understanding metered load Megawatts for the AEP Appalachian Power transmission zone. For this analysis, the client would like the data to be rolled up to monthly ***average*** transmission and would like the data from 2016-2022 to be used as the training data set; the months of January-April 2023 to be used as the validation. The scope of services includes the following:

- Creation of top 2 ARIMA models for forecasting megawatts per month (PJM would like nonseasonal ARIMA models….but you can be creative here).
- Comparison of these two models in terms of advantages and disadvantages (for example, how do they forecast, do they have white noise, stationarity, complexity of the model, etc).
- Plot of forecasted versus actual data in the validation data set (for both models)
- Measure of accuracy for the test data set (for both models)

Data Provided

The data is downloaded from Data Miner, which is PJM's enhanced data management tool. The data set provides the hourly energy load in Megawatts (MW) in the AEPAPT Region from January 1, 2016 to July 31, 2023. Columns in this data set are:

Datetime_beginning_utc – do not use this time information (Universal time)

Datetime_beginning_ept – this is the date and the hour for which the energy load occurred
Nerc_region – This is the NERC (North American Electric Reliability Corporation) region (which for this analysis is in the RFC region)
Mkt_region – The market region for this report is MidAtlantic
Zone – The transmission zone for this report is AE
Load_area – This load area is AECO (Atlantic City Electric in New Jersey)
Mw – Megawatts per hour of energy (metered)
Is_verified – Boolean (True/False) indicating if results were verified