Day-Ahead & Real-Time Constraint Investigation

Background

The flow on each transmission line is determined by the pattern of generation (supply) and load (demand) across the electrical grid. A transmission line becomes congested when the flow on that line exceeds a limit known as the line rating which often necessitates more expensive generation to alleviate the congestion. We often attempt to forecast the congestion on a line which is measured by a quantity known as the shadow price (of the constraint).

Data

Attached is a spreadsheet *data.xlsx* which contains

- date and time
- constraint DA (Day-Ahead) shadow price
- constraint RT (Real-Time) shadow price
- wind forecast
- solar forecast
- load forecasts for different zones in PJM's grid

Problem

Create predictors for constraint DA and constraint RT. This is deliberately open-ended and somewhat vague as we are interested in your approach and thought process. You can use a Jupyter notebook to show your progress. Feel free to email me at bkaneshige@nstrading.com with any questions.