**Hello**

This first assignment is very important to lay the groundwork for all other assignments in the semester.

1. Process

**Step 1: Pick an area that is closely related to your research.** This could be anything related to the power and energy field, such as microgrid, renewable energy, storage, electric vehicles, smart buildings, smart homes, transmission, distribution, etc.

**Step 2: Search related (open or private) data sets.** Some publically available open datasets are provided in the class. You can also search utility and ISO (e.g., NYISO, ISO-NE) websites. If you have your own data resources, feel free to use them.

**Step 3: Generate data if needed, and make reasonable assumptions.** If data are not available for the research you wish to conduct, you may consider generating data using power system softwares (e.g., OpenDSS, PSSE). *You are recommended to use some real world data as inputs in the data generation process.* Make reasonable assumptions of data point locations, as in reality sensors are not installed everywhere throughout the systems.

**Step 4: Preliminary analysis of your data.** Prepare data for your analysis and visualize the data. This initial understanding will get you familiar with your data and help you find potential patterns. After all, you need to work on the same dataset over and over again in the semester.

**Step 5: Find a purpose for your data.** That is, find an interesting application for your data. *This includes two steps which encompasses the topics in our class: predictive analytics and decision making.* What can you get out of the data? How this extracted information could help you make better decisions? This final step is the most challenging and requires a big portion of your time in this assignment. If needed, you may want to review a few papers to get a good idea.

1. Submission

* You are required to deliver a 10-min presentation in class.
* You also need to write a 1-2 page written report, in IEEE double-column paper format.