EE/CprE/SE 491 WEEKLY REPORT

Sep 16, 2019 – Oct 3, 2019

Group number: 21

Project title: New Simulation Methods to More Effectively Integrate High Levels of Renewable Energy Resources

Client &/Advisor: MISO and James McCalley

Team Members: Jared Rickard; Collins Ntwali ; Nidhi Rawell ; Jeremy Nash ;

---

o **Weekly Summary -**

We began the project by looking into background information given to us by our academic advisor and client. We also talked with our client about further developing the scope of the project and obtaining test data for simulation purposes. We looked into obtaining the tools we will need for simulating our results, such as copies of Production Cost Modeling software PLEXOS and virtual machines to run the software.

o **Past week accomplishments**

- **Jared Rickard**: Reviewed background material in preparation for customer meetings and future work. Talked to customer about better defining the scope of the project. Assisted in the process of obtaining Plexos.

- **Collins Ntwali**: Reviewed Daniel Kirschen PowerPoint from Dr. McCalley that poses some questions that we should be thinking about as we brainstorm ways to cluster data into representative days given one year of hourly net load data. From these ideas, I researched about a clustering algorithm called K-means and how we can apply it to cluster our data and get useful information from it. I also completed a license request form needed to acquire the simulation software, Plexos, that's essential for the project.

- **Nidhi Rawell**: filled out the license form to get Plexos software, worked on a list of attributes or dimensions to look at while running simulations

- **Jeremy Nash**: started the process to obtain Plexos software, made meeting agenda, made weekly report template, brainstormed a list of attributes like what characterizes the process of a power grid over a 24-hour period.

o **Pending issues**

- **Jared Rickard**: Waiting for any work from customer done prior to the start of this project.

- **Collins Ntwali**: Waiting on Plexos license from vendor to begin simulations.

- **Nidhi Rawell**: Have not set up VM or downloaded Plexos

- **Jeremy Nash**: still haven't finished the process to download Plexos

o Individual contributions

Name	Individual Contributions	Hours This Week	Hours Cumulative
Jared Rickard	Research	18	18
Collins Ntwali	Research	8	18
Nidhi Rawell	Assignments, research	8	8
Jeremy Nash	Documents, research	8	17

o Plans for the upcoming week

- **Jared Rickard**: Begin working on program to perform basic one-dimensional approximation as proof of concept.

- **Collins Ntwali**: Firstly, familiarize/Learn basic commands and navigation of Python programming language as it will be heavily used during the project. Secondly, try to understand what the Plexos profiles data means. Perhaps will be explained in our next client meeting on 10/3.

- **Nidhi Rawell**: Look over the data from MISO, research, and setting up Plexos

- **Jeremy Nash**: Delve further the software acquisition, research, look over MISO files

o Summary of weekly advisor meeting –

- Divide task amongst team members.
- Put together an organized central doc with all meeting notes.
- Complete requirements to get Plexos License.
- Brainstorm features for clustering data.