

## EE/CprE/SE 491 WEEKLY REPORT 2

10/4/19 – 10/11/19

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 -

This week we created the list of possible attributes to cluster on, brainstorming different ideas to add to the list. We also began looking into the topic of other clustering algorithms to create our approximations. We furthered our understanding of Python and kept working on the previous works code to implement it in Python.

### o Past week accomplishments

- **Jared Rickard:** Added to document brainstorming clustering criteria for approximations. Further worked on re-implementing previous R code into Python.
- **Collins Ntwali:** Installed Eclipse and began writing some code to familiarize myself with Python.
- **Nidhi Rawell:** Learned more about the list of attributes or dimensions for the inputs and outputs. Moreover, learned more about coding in Python. Discussed the way in which we would divide the work in the project among the team members.
- **Jeremy Nash:** Moved along the Plexus download with the Energy Exemplar company, developed an excel sheet that can model the k-means cluster method visually. This allows us to decide if we should use this method in the project or look elsewhere for other clustering methods

### o Pending issues

- **Jared Rickard:** Research K-Means implementations in Python.
- **Collins Ntwali:** Awaiting Plexos license.
- **Nidhi Rawell:** Still waiting to obtain Plexos licenses in order to start running simulations.
- **Jeremy Nash:** still looking to use k-means with multiple dimensions instead of just 1 data set, waiting to hear back from Energy Exemplar.

### o Individual contributions

Name	Individual Contributions	Hours This Week	Hours Cumulative
Jared Rickard	Code	10	28
Collins Ntwali	Researching and listing common python commands	8	26
Nidhi Rawell	Research	8	24
Jeremy Nash	Documentation, Research	10	27

### o Plans for the upcoming week

- **Jared Rickard:** Keep implementing old code into Python. Start working on other aspects of the project that need code written
- **Collins Ntwali:** Get familiar with python. Run a script to cluster one generation/load profile using K-means algorithm.
- **Nidhi Rawell:** Writing and creating code in Python to perform calculations on the data. Researching alternative clustering algorithms to k-means.
- **Jeremy Nash:** Develop and run a simple Python Code, develop the excel k-means simulation sheet further

### o Summary of weekly advisor meeting –

Discussed ways to update the list of attributes or dimensions to look at when analyzing the data for the project. Further discussed what these attributes mean, how to interpret them. Updated progress on obtaining Plexos license.