

EE/CprE/SE 491 WEEKLY REPORT 4

10/24/19 –11/3/19

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 -

Furthered research into Python and various clustering algorithms. Built code for approximating data in a profile by a user specified time subset and edited it to allow for fragments of weeks and months when calculating the K-means clusters. Also made some updates to the team website.

o Past week accomplishments

- **Jared Rickard:** Built the code for approximating data in a profile by a user specified time subset.
- **Collins Ntwali:** Researched more about python and clustering algorithm K-mean.
- **Nidhi Rawell:** Worked on better understanding the Python coding done by the other team members, and continued the process of learning Python.
- **Jeremy Nash:** Edited the python code to allow for fragments of weeks and months when calculating the K-means clusters; also worked on file management and website updating

o Pending issues

- **Jared Rickard:** Expand the code to approximate based on a variable set of attributes. Write code to build different data sets and approximated based on that data sets attributes, i.e. instead of taking one profile and approximating based on max/min values, total energy, and max ramp, we take the values of all profiles at one hour and approximate based on lat/lon data and generation at that hour.
- **Collins Ntwali:** Waiting on Plexos license to test out simulations.
- **Nidhi Rawell:** Getting a VM from the ETG
- **Jeremy Nash:** Code functionality on my system, and still need to get a VM on my computer

o Individual contributions

Name	Individual Contributions	Hours This Week	Hours Cumulative
Jared Rickard	Python coding, data interpretation brainstorming	10	48
Collins Ntwali	Research and python coding	9	44
Nidhi Rawell	Learning Python coding	8	42
Jeremy Nash	Python coding/commenting, file management	10	46

o Plans for the upcoming week

- **Jared Rickard:** Verify python code updates. Expand based on the issues listed in Pending Issues
- **Collins Ntwali:** Build on the list of attributes that can be used to cluster similar days.
- **Nidhi Rawell:** Help with the list of attributes being looked at for the clustering and get a better understanding of the values (reference numbers) for the total energy and the capacity factor of the data.
- **Jeremy Nash:** Continue with Python code, ask about direction for code

o Summary of weekly advisor meeting –

Discussed how we're handling fragment weeks/months, and decided that we would test the approximations with and without accounting for the "remainder days" and observe the difference in results. Next week's task is to expand on the profile attributes and discuss each one's importance/weight in relation to our model in next advisor meeting.