EE/CprE/SE 491 WEEKLY REPORT 3

10/12/19 – 10/23/19

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/Role: Jared Rickard - ; Collins Ntwali - ; Nidhi Rawell - ; Jeremy Nash - ;

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o **Weekly Summary** - This week we researched possible clustering methods for the program to implement. We further transformed the code into Python from R. Now, it takes one column of data and uses k means to transform it, outputting runtimes and the transformed data. We compared different k numbers' runtimes and accuracies. 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:** Fully imported previous code to Python. Created sample outputs to demonstrate results and runtime.

- **Collins Ntwali:** Downloaded Python IDE and went through tutorials.

- **Nidhi Rawell:** Did further research into clustering methods, and made a pros and cons list for the different clustering methods. Installed an IDE for Python.

- **Jeremy Nash:** Successfully downloaded Python, installed a Python add-on for the Eclipse IDE, started learning Python by making short programs and functions. Furthered the talks with Energy Exemplar about downloading the software.

o **Pending issues**

- **Jared Rickard:** Finish metadata calculations and show clustering around metadata

- **Collins Ntwali:** Waiting on Plexos.

- **Nidhi Rawell:** Learn more about Python programming and expand on research for different clustering methods.

- **Jeremy Nash:** Still trying to break through to the Energy Exemplar people. Working on modifying my program to be used with our main program that Jared is developing.

o **Individual contributions**

Name	Individual Contributions	Hours This Week	Hours Cumulative
Jared Rickard	Python	10	38
Collins Ntwali	Python, Research	9	35
Nidhi Rawell	Research, Learning Python	9	34
Jeremy Nash	Python, Plexos, Research	9	36

o **Comments and extended discussion –**

o **Plans for the upcoming week**

- **Jared Rickard:** Finish metadata calculations and show clustering around metadata

- **Collins Ntwali:** Figure out how to integrate excel metadata into Python code.

- **Nidhi Rawell:** Learn more about clustering and Python

- **Jeremy Nash:** learn Python more, further develop functions for final code

o **Summary of weekly advisor meeting –**

We discussed the differences, pros, and cons of different clustering algorithms to better understand them. We discussed different ways to interpret the data. We discussed how to utilize the output of one simulation to better approximate the data for the next few simulations.