

# EE 491 WEEKLY REPORT 7

October 18th - 24th

Power system reliability in MISO for high wind/solar levels

Group 23

Client: Midcontinent Independent System Operator

Team Members:

Zaran Claes

Shannon Foley

Matt Huebsch

Shelby Pickering

Ian Rostkowski

David Ticknor

## WEEKLY SUMMARY

This week the team worked to finalize an approach for the siting of generation facilities that will be added in the PLEXOS models. The team met with the client team at MISO and displayed the heat maps that have been generated from the given data, as well as the project schedules for both the fall and spring semesters. The heat maps will serve as a tool in visualizing areas with high generation potential.

On 10/19/18 however, the team experienced a setback when they discovered flaws in the given data from MISO. The MISO team removed the given data from the collective CyBox and added new correct data.

The senior design team also contacted ETG in regards to downloading PLEXOS onto school computers and using a lab somewhere on campus for the team to work. A meeting was scheduled for Monday 10/22/18 to discuss these plans. After the meeting, it was decided that the senior design team would look into borrowing a laptop from the ETG in order to provide a centralized machine that would be used to run PLEXOS. The team is also currently looking into whether or not creating a virtual machine that can be accessed remotely is possible. This requires clearance from Exemplar, who distributes the PLEXOS licenses.

Lastly for the week, the senior design team has developed a few ways in order to define a set of criteria and a process to follow when determining siting for the different penetration levels. These processes will be discussed with MISO on Wednesday 10/24/18 with the hope that the experience from the MISO team will be able to lead us in the right direction when trying to identify what process is the best to use.

## ACCOMPLISHMENTS FOR THE WEEK

<b>Name</b>	<b>Accomplishments</b>	<b>Hrs this week</b>	<b>Total</b>
<b>Zaran Claes</b>	<ul style="list-style-type: none"> <li>-Completed capacity credit calculations</li> <li>-Created heat maps based on calculations</li> <li>-Helped create tentative plans for siting</li> <li>-Meeting with ETG to get PLEXOS on school computers.</li> </ul>	10	36
<b>David Ticknor</b>	<ul style="list-style-type: none"> <li>-ro-org'd cybox and personal data storage locations to archive old data</li> <li>-worked with new data</li> <li>-devised siting criteria</li> <li>-went over siting criteria with team</li> <li>-worked with Energy Exemplar support to get PLEXOS working</li> <li>-ETG meeting for school resources</li> </ul>	12	43
<b>Shannon Foley</b>	<ul style="list-style-type: none"> <li>-Finished all the heat maps that are needed for 2008 for the capacity credits for top 10, top 100, and July hours from 3-8pm</li> <li>-Worked to get Plexos onto a computer through the school by working with workers in the ETG</li> </ul>	10	35
<b>Ian Rostkowski</b>	<ul style="list-style-type: none"> <li>-Completed heat map generation for 2011</li> <li>-Helped team devise approaches to siting generations sources</li> <li>-Met with ETG staff to see about getting PLEXOS on school computers</li> </ul>	9	36
<b>Shelby Pickering</b>	<ul style="list-style-type: none"> <li>-Re-did the base capacity credit calcs (top 1,10,100 and avg of July) with the new data</li> <li>-Created heat maps based on calculations</li> <li>-Senior Team meeting about siting</li> <li>-MISO weekly meeting</li> </ul>	6	28.5
<b>Matt Huebsch</b>	<ul style="list-style-type: none"> <li>-Wrote minutes for meeting 7</li> <li>-Worked on weekly report</li> <li>-meeting and discussion</li> </ul>	4	33

## PLANS FOR NEXT WEEK

Next week the senior design team should either have computers on campus or a virtual machine which they can download PLEXOS onto. Some members of the senior design team do not have prior experience with PLEXOS, so the members who have used it before will host a brief PLEXOS workshop to understand the basics and how the software will be used to evaluate data. Additionally, it is a goal of the client, MISO, for the senior design team to have siting completed by the end of next week, so this will be the primary focus of the team.

## INDIVIDUAL CONTRIBUTIONS FOR NEXT WEEK

Zaran Claes – Help Shannon run PLEXOS workshop now that we have the program. Since the original data that was used to create the heat maps is now obsolete, the heat maps for 2007 have to be redone.

David Ticknor – Re-make heat maps for new data. Next week I will sit down and figure out PLEXOS. Hopefully we can come together on a siting criteria and really get started with siting and splitting up tasks for that. I am unsure exactly how much I will be able to get done as I have 4 exams coming up during our next week and will be very busy preparing for them.

Shannon Foley - Recreate heat maps that MISO changed the data on. This week is important to finish up siting. I will create an outline for how it needs to be done and work with the team to complete it.

Ian Rostkowski – Recreate heat maps with the new data provided by MISO. Take part in the determining of the groups siting criteria approach. Lastly, take part in the PLEXOS workshop and learn how to use the program.

Shelby Pickering – Learn PLEXOS by attending Zar and Shannon's workshop. Work on siting as soon as the plan of approach is finalized. In parallel with siting, I will do more capacity credit calcs as needed in order to help identify important patterns in the data.

Matt Huebsch - Write minutes for meeting 8. Work on capacity value heat map and siting criteria.