

*EE/CprE/SE 492 BIWEEKLY REPORT 5 SDDec21-10*

*Iowa State BESS (Lithium-Ion Battery Energy Storage System)*

*Oct 25th – Nov 8<sup>th</sup>*

*Client: Burns & McDonnell (Point of Contact: Chris Ruckman)*

*Faculty Advisor: Dr. Venkataramana Ajjarapu*

*Team Members/Role:*

*Aisha Alzaabi- Client Communicatory*

*Hussein Abbakar- Load flow analysis and one-line diagram*

*Gregory Bizoff - Webmaster and Assistant Circuits Specialist*

*Matthew Pfeiffer - CAD Design Specialist, Site Layout Engineer, and Project Manager*

*Chase Stahl - Secondary CAD Designer*

*Julia Zhang - Circuits Specialist and Assistant Webmaster*

**Biweekly Summary**

- *Weekly client meetings held on Thursdays from 3:30 - 4:30*
  - *10/28/2021 meeting:*
    - *We went through cable sizing, grounding, and load flow study with our client.*
  - *11/04/2021 meeting:*
    - *We discussed the challenges and questions that the team had for the tasks.*
- *12-week design schedule to learn materials and present deliverables that include but are not limited to grounding diagrams, load flow analysis, short circuit analysis, and circuit sizing and scheduling.*
- *Review faculty panel year-end presentation (Spring 21 semester) and touch base on where the last semester ended.*

**Accomplishments**

- *Developed approaches to create a grounding diagram and a load flow for the BESS*

- Made a progress with cable sizing
- During our client meeting, we went through cable sizing details and finalized the grounding diagram.
- We had a meeting with Burns & Mac for an ETAP tutorial.
- We met with our academic advisor Dr. Ajjarapu and discussed our progress with him

**Pending**

- Site layout re-evaluation
  - We kept our site more general to provide more flexibility to our project
- Grounding Diagram - Matt
  - Develop and overlay grounding materials on initial site layout design per NEC 2020 code
- BESS Load Flow Study - Hussein/ Julia
  - Work on load flow and short circuit analysis.
  - Working on a one-line diagram in ETAP.
- Cable Sizing - Chase
  - Work on cable sizing

**Individual contributions**

<b>NAME</b>	<b><u>Individual Contributions</u></b>	<b><u>Hours this week</u></b>	<b><u>HOURS cumulative Spring</u></b>
Aisha Alzaabi	Site Layout review	2	10
Hussein Abbakar	BESS Load flow study	3	13
Gregory Bizoff	Site Layout review	2	10
Matthew Pfeiffer	Grounding plan	3	13
Chase Stahl	Site Layout review	2	13
Julia Zhang	BESS Load flow study	3	12

## **Plans for the upcoming week**

- Grounding Plan - Matt
  - Overlay Grounding wire, grounding rod, and connection points to site layout
  - Refresh and learn NEC 2020 grounding code to ensure everything is up to standards and ensure safety.
- Site Layout review - All
  - Review site layout for a new placement
  - Determine if the site layout needs to be reworked entirely or just moved to a new location
- BESS Load Flow Study - Hussein/ Julia
- BESS Connection Diagrams - All
- BESS Cables/Sizing/Cable Schedules - Chase