

4910 Lightning Talk 2: Users and Needs

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Project Overview

- Client: Burns and McDonnell
- User: ISU Utilities and customers
- Goals:
 - Model and analyze the ISU Microgrid
 - Increase reliability for end users
 - Design upgrades for both transmission and distribution power systems
 - Create future plans for load growth and increase of renewable energy

Problem Statement

We are tasked with designing/modeling an upgraded and modernized electric distribution microgrid for Iowa State's Campus. In addition, we'll be developing a design/model for an upgraded substation to connect with our newly designed microgrid.

Key Constraints

- Limited access to detailed utility information
- Campus is landlocked to a certain area, which poses a challenge for integrating renewable energy sources into the grid

List & Description of Users

Iowa State Utilities

- Main party interested in the contingency and jumpering plans for the campus

Landowners in the Area

- Would have vested interest in where renewables would be built
- Iowa State may own convenient land, but might already have different plans for it

Power Consumers on Campus (Students, Staff, etc.)

- Consistently on campus
- Using electricity for lights, devices



User Needs

Reliability and Resilience

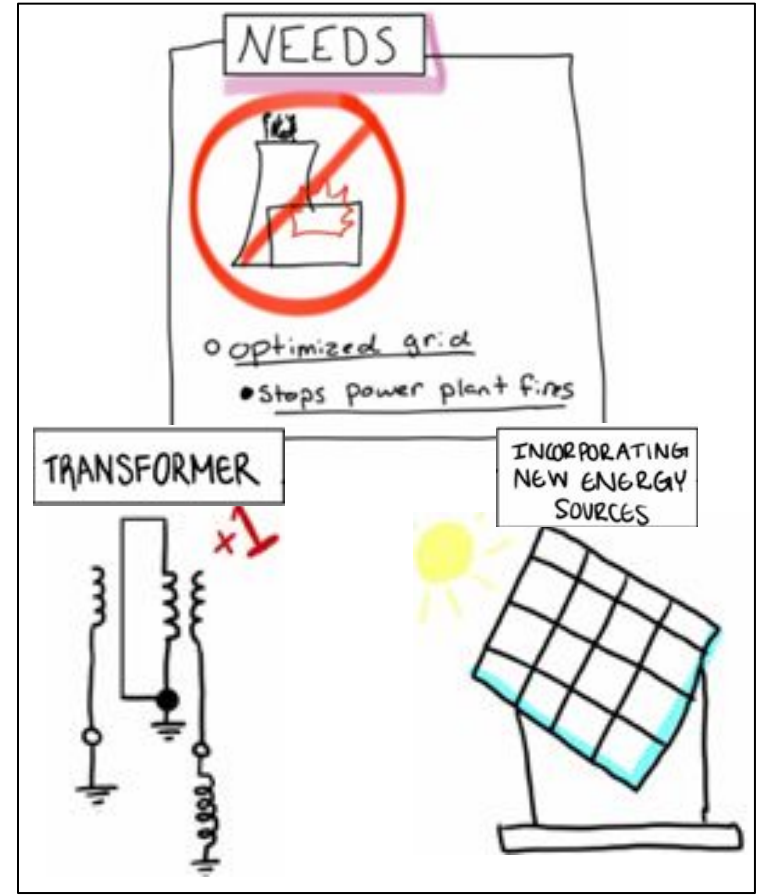
- Ensure power delivery, support contingency plans, handle peak demand

Adaptability to Renewables

- Integration of wind and solar power

Safety & Compliance

- Meet safety standards (fault current and grounding studies)



User Needs (Cont.)

Cost-Effective Upgrades

- Balance performance improvements w/ budget, ensure long-term operational efficiency

Future Readiness

- Design for scalability, handling future demand, technology, and growth



Conclusion

In summary, we are dedicated as a team to enhance the grid reliability, support renewable integration, and ensure a cost-effective upgrades for the Iowa State campus. We will focus on protection, scalability, and future needs. Our goal is to provide a resilient, adaptable, and efficient power system that meets the demands of today and prepares for the future.