

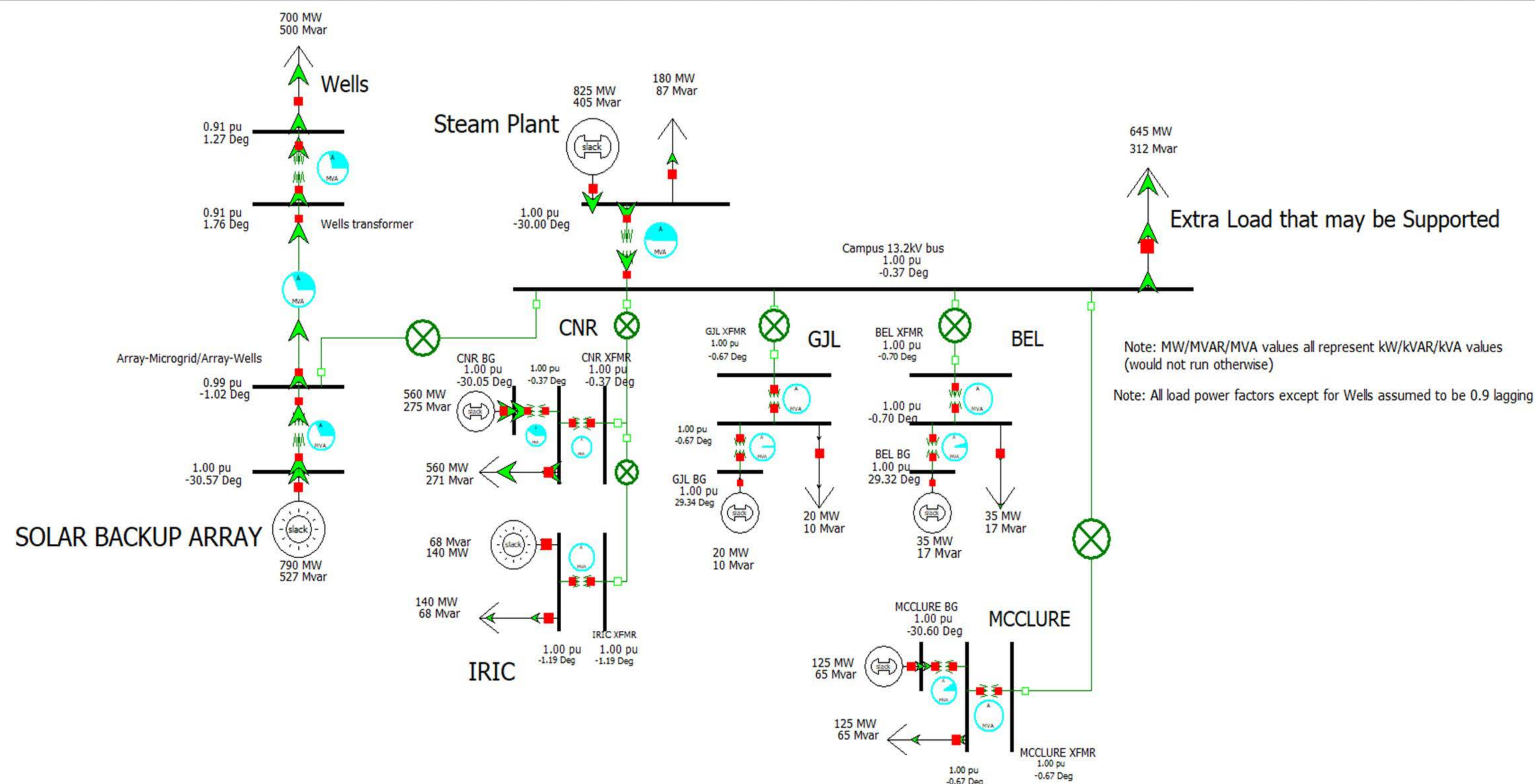
## Problem

To reveal pertinent issues associated with the expansion of the microgrid and expose the pros and cons pertaining to the capacity, connectivity, protection, and overall efficiency of the grid. Along with connecting to the 1MW Solar PV Array, we will also highlight the best suited technology for these applications.

## Project Goal

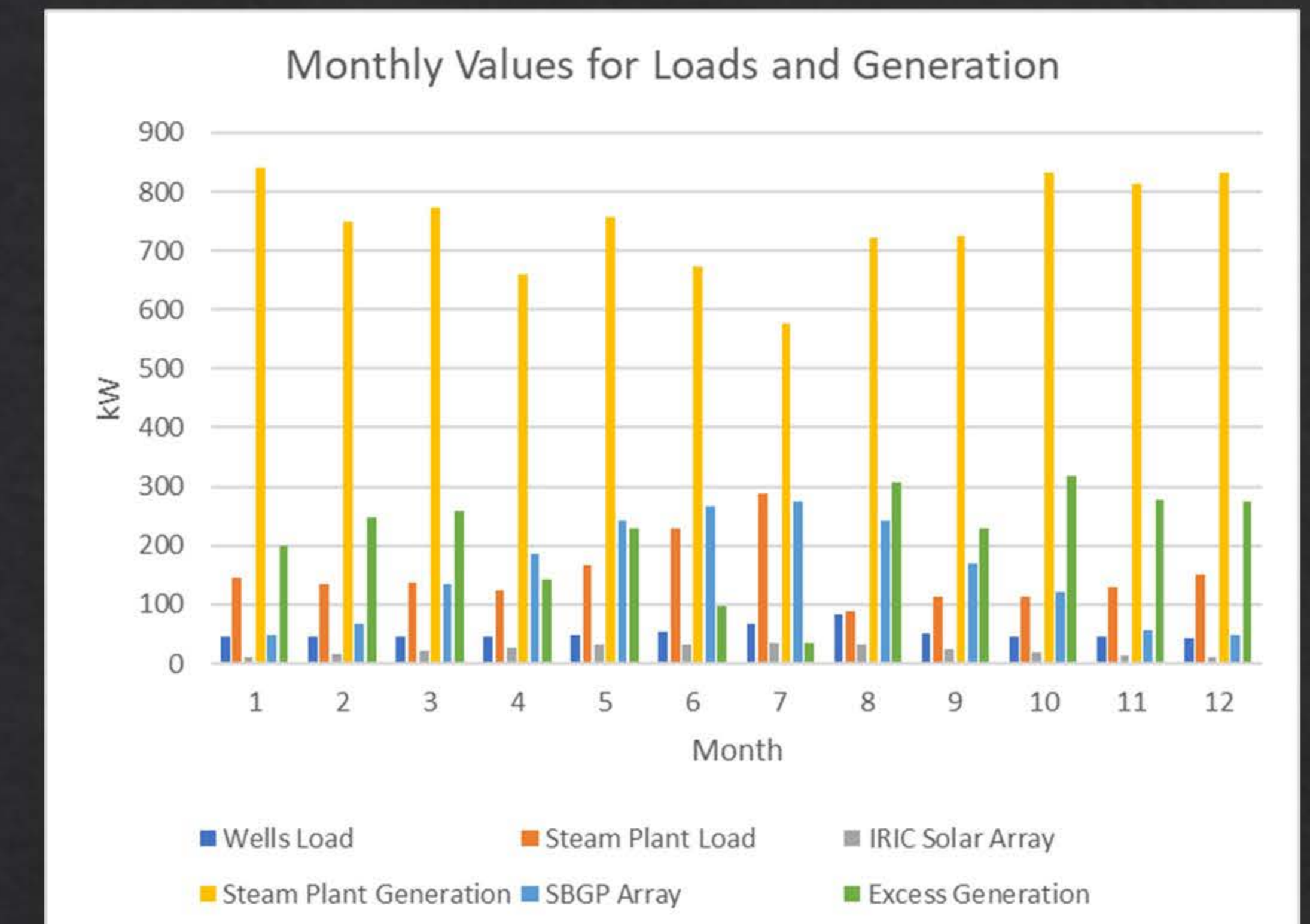
Expand the current campus microgrid design to integrate the new solar generation from the 1 MW array, the IRIC array, as well as the critical load of the wells. Relays, switches, and controls will be tactically integrated to ensure effective grid diagnostics and controllability (Islanding/Load Shedding). Determine which loads can be supported given available generation and under specific use case scenarios. Account for seasonal changes and their effects on energy efficiency.

## Design



Acknowledgments: Herbert Hess, Hussain Beled, and the University of Idaho Facilities

## Solution



Working with the worst-case scenario of Avista going down. Through multiple analyses our expansion project displays the potential risks at hand, as well as display ways to implement less disruption in the micro-grid when systems fail. This will allow the University of Idaho to continue functioning in a crisis.

## Future

This microgrid expansion project looks at the integration of several new generation sources: a 1 MW backup solar array, a 140kW solar array on top of the IRIC building, and backup generators within McClure, CNR, BEL, and GJL. Also, the design focuses on the emergency 480V circuits of the existing buildings and adds the loads of the Steam Plant and the IRIC emergency circuits. The study also serves to assess how much additional load may be supported from available generation during different use cases, which will be passed to the next team to continue current work.