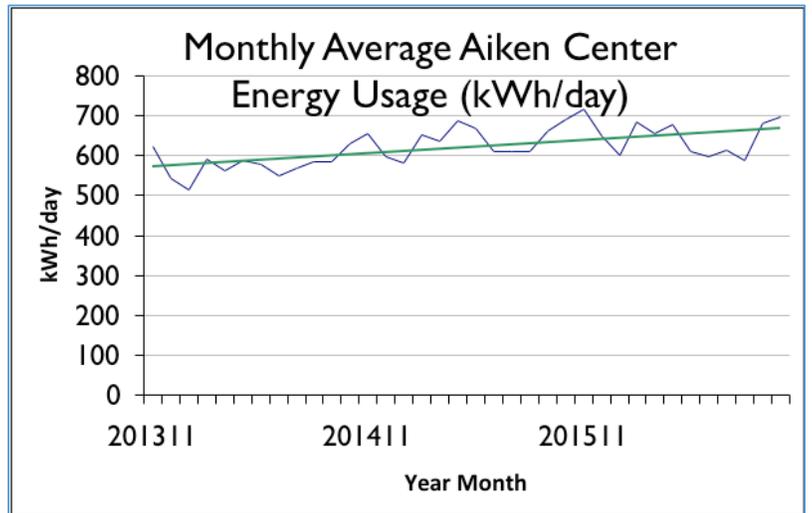


Aiken's Energy Creep

Interns: Patrick Mulhern, Zach Masi, Kira Wollensak

Mentors: Michelle Keller, Rich Wolbach, Gary Hawley

Prior to the recent renovation, the George D. Aiken Center at UVM was an average, relatively inefficient, academic building. From 2010-2012 the building underwent a major renovation to meet the LEED platinum requirements, thus increasing its energy efficiency, increasing water conservation, including an on-site wastewater treatment system, and adding a heavy reliance on renewable materials. After the renovation, the building's energy use was at a record low, but to our surprise the electrical energy use in the Aiken Center has been on a slow, but sure, increase since the first year of the building's use. Our Greening of Rubenstein Intern group (Patrick Mulhern, Biological Science, '19; Zach Masi, Environmental



Sciences, '19; Zach Masi, Environmental Sciences, '19; Kira Wollensak Environmental Sciences, '18) is now attempting to investigate the cause of this slow increase by recommissioning the Aiken Center. Along the way, we have planned to research the LEED re-certification process and also the steps necessary for the Aiken Center to potentially become Living Building Challenge Certified. All three of these goals will help push the Aiken Center towards the goal of becoming a Net Zero Energy building and create a more efficient and sustainable UVM.

Our first step was to review and summarize the LEED re-certification process. We wanted to determine whether or not the re-certification was plausible or financially achievable. We discovered that the re-certification process is almost identical to the original certification process. This means that re-certifying is approximately the same price as the the initial certification that the building underwent in 2012. We consulted with Rich Wolbach from UVM Energy and Michelle Keller from Burlington Electric about the pros and cons of the project. We also discussed the decision with the Greening of Rubenstein instructor, Gary Hawley, and concluded that we will no longer recommend to re-certify the building. Our group believes that the money needed to achieve the re-certification could be put to better use in an attempt to increase the energy efficiency of the Aiken Center and reach the Net Zero goal. We are now reviewing the certification process for the Living Building Challenge to see if it is more plausible of a certification than the LEED re-certification.

The second half of our project is to assess what is causing the increase in energy use that has shown up in our data. Michelle Keller from Burlington Electric walked us through the data she has collected and reviewed regarding the energy use of the Aiken Center. The graph above shows the energy creep in terms of the average energy used per day for each month (kWh/day). So far, we have spent our time brainstorming reasons for the energy creep. We believe that outdated appliances and inefficient use of the building's thermostats could be a big culprit for the creep. There have also been several necessary changes in the building that result in an increased energy use. Most of the computerized thermostats found in every room have a "fan on" option and "fan automatic" option, and we believe that many people choose the "fan on" option even though this option does not change the temperature in the room. Programing all of the thermostats to only the "automatic" setting could have a tremendous effect on decreasing energy use. Eventually a re-commissioning agent will be hired to complete an energy audit on the building and help us confirm these theories and suggest additional energy saving options.