

ENERGY CONSERVATION IN ACTION

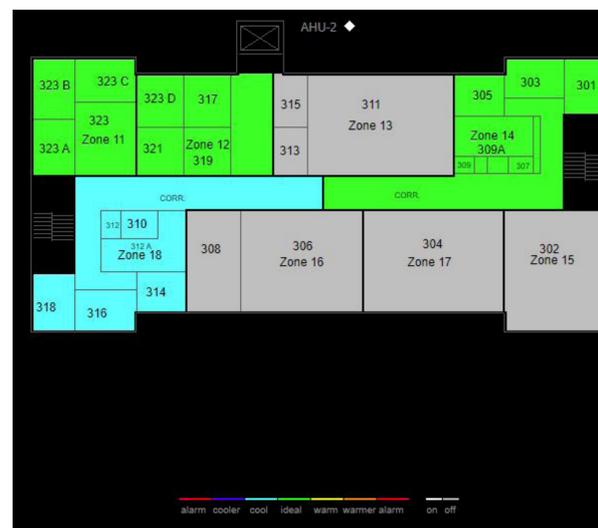
Energy Conservation in Action is a program aimed to build upon sustainability initiatives on campus, further reduce energy consumption, move towards Elon's goal of carbon neutrality in 2037 and save on utility expenses.

Implementation



Map of main campus.

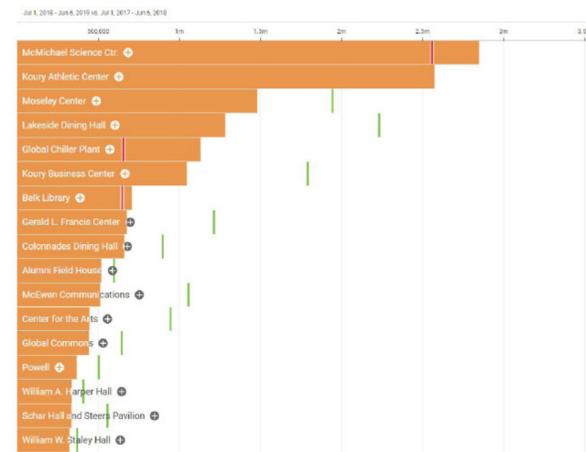
- Currently, 161 buildings are set to 'unoccupied' mode outside of normal business hours (typically 6 pm to 6 am).
- 'Unoccupied' mode changes the controlled set point to 55 degrees in the winter and 85 degrees in the summer.



The third floor of the Powell Building, pictured above, includes office spaces as well as classrooms. Throughout the summer, classrooms are switched to 'unoccupied' mode, while office spaces remain in 'occupied' mode, allowing faculty and staff to remain comfortable while saving energy.

- Events2HVAC is a program that reads space schedules from the University's reservation system and automatically puts those schedules into the HVAC control system, which automates setting space conditions to match the schedule.
- The program makes it possible to track and match occupied HVAC settings with actual reservations without the need for faculty, staff or students to do anything more than reserve the space.
- It makes it possible to have the default condition be at the lower energy 'unoccupied' setting, even during normal business hours, while assuring the space can be at the 'occupied' setting when it is needed.
- Currently, 141 spaces can be controlled through Events2HVAC.

Results



A year over year comparison of the 17 buildings that use the most energy throughout campus.

- Vertical lines indicate the previous year's electrical energy consumption in total kWh.
- Green lines indicate energy savings, while red lines indicate an overage in energy expenditure compared to the previous year.
- Where overages are noted, staff are able to focus their attention on these problem areas.
- Overall, Elon has realized an energy savings of about 6.5% in one year compared to the previous 5-year average (FY 2014 - 2018).



Heat map showing energy intensity throughout the day, month to month for one building.

- The lower the intensity the deeper the green; higher intensity is represented with red and yellow is average.
- Periods such as Thanksgiving, winter break and spring break show the deeper greens due to being able to set buildings to 'unoccupied' mode.
- Early February's mid-day higher intensity is the result of higher heating degree days due to very cold temperatures.
- The overall amount of green is indicative of a low energy intensity building.

Energy Conservation in Action has resulted in a **nearly \$250,000** cost savings in one year.