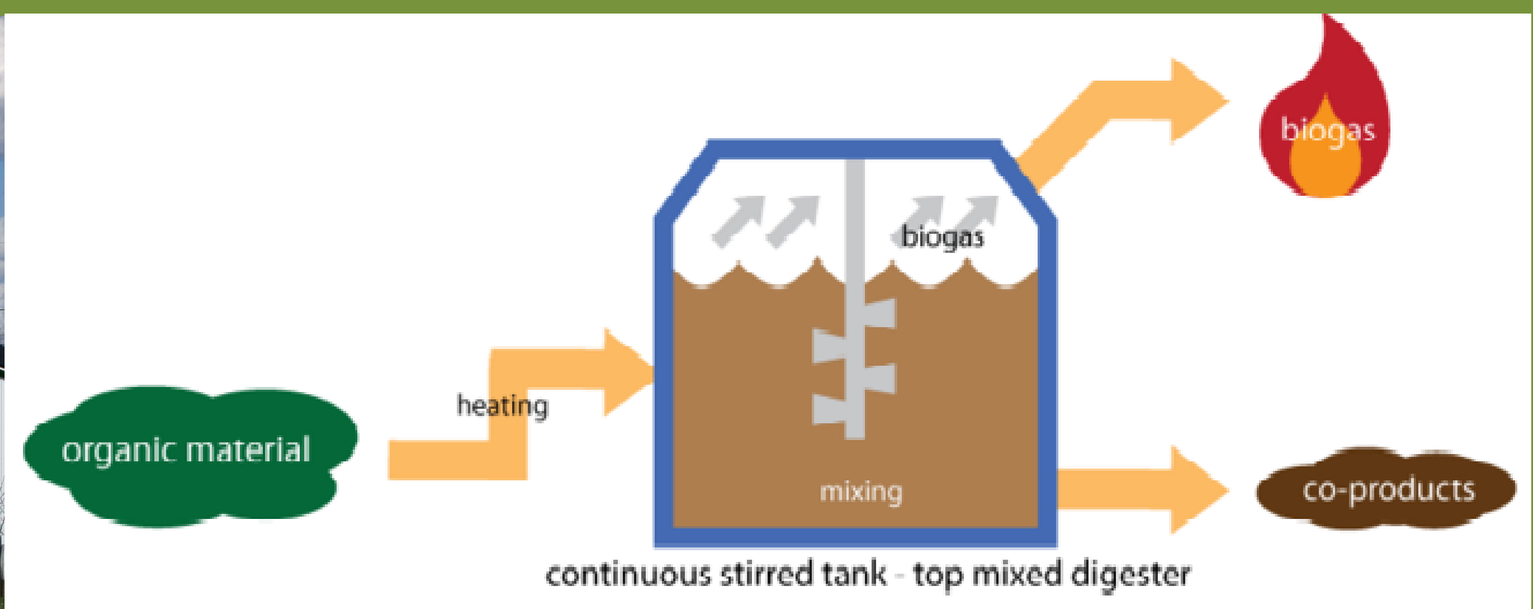
University of Kentucky
Student Sustainability Internship Program
Energy Efficiency and Sustainability Internship

Zachary Tyler

Hometown: Winchester, KY
Major: Biosystems Engineering
Year: Senior
Unit Association: Office of Sustainability

Work with Mentor: My work with Britney Thompson, an energy engineer for UK, has been to evaluate the reduction of unnecessary energy expenditures on campus lighting through the installation of occupancy sensors. Many bathrooms and hallways remain lit even during nights and weekends, when nobody is present. This results in substantial energy waste and unnecessary expenditures. I have been collecting and analyzing data to identify target areas that will result in the largest energy savings and quickest payback periods. This data, once compiled and presented, should justify and result in the installation of these energy-saving sensors.



Independent Project: Due to the large amount of organic waste generated by UK, I have been researching the feasibility of utilizing a biodigester to generate renewable energy for campus. A biodigester facilitates the breakdown of organic products such as food waste and grass clippings via anaerobic bacteria, which in turn create a biogas that may be used to fuel a generator. This organic waste would otherwise result in heavy disposal fees or high environmental impact due to the potent emissions associated with landfill disposal. Therefore a biodigester may serve as an sustainable and economically-sound solution by converting these waste materials into a value-added source of renewable energy for campus. I will provide a report analyzing the technical and economic considerations for such a system, with the goal of highlighting optimal design features that may be implemented in the near future.

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