# **Group Project:** **Implement Advanced Energy System Design In Existing Building**

# Objectives

Select a building on campus and identify the base demand load and energy profile. Using the baseline, recommend Advanced Energy System Design upgrades to achieve a Net Zero building. Combine your knowledge from Assignments 1-3 and present your findings to your peers, faculty, facility management and stakeholders.

# Scope:

1. Acquire building energy bills for a two-year period. Consider when the bills were generated and comment on the year and any anomalies that may affect the accuracy of the energy use.
2. Calculate annual energy use and peak demand in an Excel sheet.
3. Determine an average for equivalent carbon dioxide emissions (eCO2)g / kWh of energy and calculate the emissions of your baseline building.
4. Recommend Advanced Energy System Design concepts under three categories based on the Trias Energetica:
   1. Reduce consumption.
   2. Improve efficiency.
   3. Use renewable energy.
5. Calculate the new demand load and energy use in kWh, and calculate the new emissions value. Note: State units of energy and emissions!
6. Divide work up among the group based on skill set and preference (draw straws if there is a weighted preference for specific tasks!)

# Deliverables

A digital or written technical report, or slide presentation that includes the following:

* Table of Contents
* Summary of Group Project results identifying students’ specific tasks
* Answers to questions 1-6
* Appendix items including Assignments 1, 2 and 3