Project Pitch- Energy Demand

By Riley Furlong, Sara Aly, Andrew Michael, Kevin Klaskala, Juan Carmona, Nila Addo, Anthony Pastor

Problem Statement

How can we determine the efficiency of the energy consumption and cost benefit of alternative energy resources in buildings across the TCNJ campus? With in depth analysis, we can offer a more personalized approach to potential distinct energy solutions.

Objective of the Module

- Can we view the data in a more comprehensible manner?
  - User-friendly web interface
- How do we analyze financial impact of energy demand?
- What options exist for green energy usage?

Desired End Product

- Built upon a relational database
- Centralized access point
- Authentication provided through login page
- Implementation of homepage for ease of navigation
- Graphical representation for ease of viewing of the data

Importance and Need of the Module

- This module is essential to understanding the energy demand of TCNJ buildings and how to maintain an energy and cost efficient campus-wide protocol.
- There is a need for this module in order to truly identify the best energy sources for specific areas of the campus and understand the financial impact each will have.
- Our graphical representation will provide stakeholders with a more comprehensive understanding of energy consumption and carbon emission.

Researching the Problem Domain/Obtaining the Data

- By using accounting principles involving cost analysis, we can analyze TCNJ’s individual buildings' energy efficiency, in order to get the economic data and resulting monetary effect of the current energy consumption across campus
- Consumption wise, we will utilize equivalent units in order to benchmark current actual CO2 emissions against alternative energy forms (including green energy) and the amount of predicted CO2 it would emit if that alternative energy source was utilized

How Our Model is Different

- Our module differs where we will provide both the energy efficiency and cost efficiency of used energy for a certain building/entity in user friendly format
- as well as providing users with green solutions that show the expected economic and energy efficiency effects of switching to green energy to help them make decisions

Possible other applications of the system

- Our database is made for Paul Romano and his sustainability team
- However, other sectors such as TCNJ Budget team can use the database
    - Example: analyzing costs of energy in dorm buildings when factoring in room and board costs