# Energy Experts

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# Problem Statement

- Identify trends in energy demand from a versatile database for TCNJ campus buildings regarding energy costs, building square footage, energy usage types, building types, building age, and occupancy for TCNJ campus buildings.
- Make a more efficient way to view this data and draw conclusions from patterns in the database.

# Objective of the Module

- What are the best indicators of cost of energy demand based on the available indicators such as energy costs, square footage, usage types, building types, building age, and occupancy for TCNJ campus buildings?
- What patterns or trends exist in the stated indicators that relate to the associated cost with energy demand?
- What is the energy consumption of campus buildings on a Gross Square Footage basis?
- What is the carbon equivalent emissions of campus buildings on a Gross Square Footage basis, on both a site and source basis?

# Description of the Desired End Product

- A database back-end and web-based UI/website that has multiple types of users.
  - Admins should be able to modify/add/delete data from the database as well as manage/delete user accounts and permissions.
  - Users should be able to request data and identify patterns and trends in a visual format.

# Importance and Need for the Module

- The database should be able to have users query it and pull information from it. This format should make it easier for the stakeholders to understand the relationships between the factors impacting energy demand. If the format is easier for clients to utilize, they may be more inclined to support a more efficient distribution of energy.

# Research Plan

- We will use the provided spreadsheets to obtain the necessary data for the database that we will be constructing. For any further research into energy demand, we will either reach out to Paul Romano (our stakeholder) or use the internet to bridge any gaps in our information.

# Other Existing Systems

- The only other system that allows users to view this data would be the provided spreadsheets. This is a highly inefficient way to access the data, since it requires manually looking through thousands of lines of information and no easy way to identify trends/patterns.

# Possible Other Applications

- This could be applied other universities or corporate campuses to help identify the economic and environmental factors of energy demand.
- It could also be used as an aid in things like real estate investment to help get an idea of the costs associated with the buildings being purchased.

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**Need**

What are the customer and market needs?

To give the college and its stakeholders an organized way to view data about energy demands, aiding them in identifying patterns and drawing conclusions on the factors and different energy sources to help reduce cost. This can be applied other large universities and organizations.

**Approach**

What is your unique approach for addressing this need?

Focusing on creating a very user friendly and accessible application to ensure ease of use.

**Benefit**

What are the specific benefits for the stakeholders?

By creating more efficient way to view this data and draw conclusions from patterns in the database, the factors that cause energy demand with the most cost burden can be identified and addressed to save costs for the stakeholders.

**Competition**

How are the benefits superior to the competition and the alternatives?

The goal of this application is to create a very user friendly interface to organize and view data, making it more appealing to the competition.