



# Energy Supply



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# Problem Statement

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- TCNJ is determining if their current sustainability and economical efforts are sufficient.
- Data is currently not placed using a database or a user-friendly application.
  - Difficult to understand and search for information
- Main issue is to determine which energy source contributes the most towards a possible economic or pollution problem.

# Objective

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- To resolve this issue, our group will plan on creating:
  - An efficient database that highlights general categories including cost and energy usage
    - Focus on C.T.O and emissions of Tri-Gen/Boilers/Chiller
    - Emissions at Site/Source
  - Separate subcategories that differentiate by energy type
  - Visualization of the environmental impact and cost relationship present for further analysis

# Desired End Product Description

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- Easily understandable map with information breakdown by building
- Include a map that displays:
  - Costs of each energy source
  - Total emissions of each energy source
  - Total emissions at a site/source basis
- User will be able to retrieve pertinent information, filter data to an extent

# Why Model is Important

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- TCNJ currently lacks an easily accessible/readable information application regarding energy use
- Find optimal areas to reduce energy costs and pollution via visual
- Users can see biggest contributors to cost and pollution
- End result will map to TCNJ's goal for environmental sustainability
- Also offer insight to plan for renewable energy

# Method of Research

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In order to fully understand the problem domain, our group plans on:

- Performing analysis on historical data to understand trends within TCNJ energy usage
- Look into the college's current strategy for energy supply
- Determine areas that would be a possible alternative depending on:
  - Sustainability
  - Energy cost
  - Energy consumption

# Similar Approaches

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- Energy Star Manager
- AASHE's STAR
- Scoring Analytic
  - Rating of energy source's cost and pollution

# Possible Alternate Applications

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- Create expected budgets based on available funds and energy needed
- Examine economic and environmental impact by season
- Re-use application to examine trends:
  - That may arise as time goes on
  - Different areas of college:
    - Vehicle supply
    - Food supply
    - Water supply