

# IPRO 337- ZERO ENERGY LAB

## Biofuel Subteam

### Problem:

- Additional energy sources are needed for the Zero Energy Lab

### Objectives:

- To design and propose a biofuel system that will supply additional energy needed.

### Methodology:

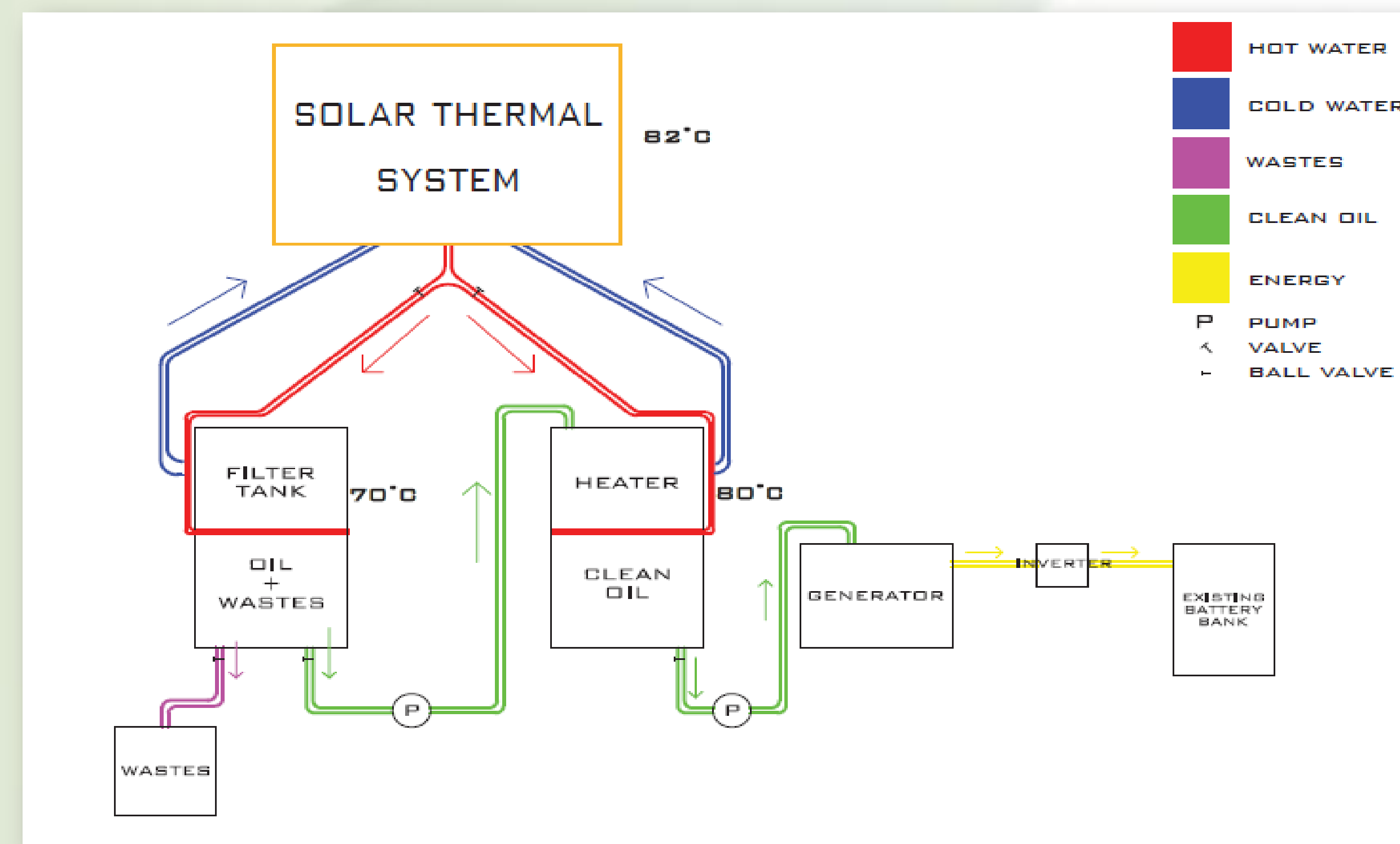
- Observed Loyola's biodiesel system and design a system that incorporates solar thermal technology.
- Developed a design for a system using waste vegetable oil in a diesel generator and incorporated solar thermal technology.
- Designed a system using waste heat from the boilers at the Co-Gen facility.

### Obstacles:

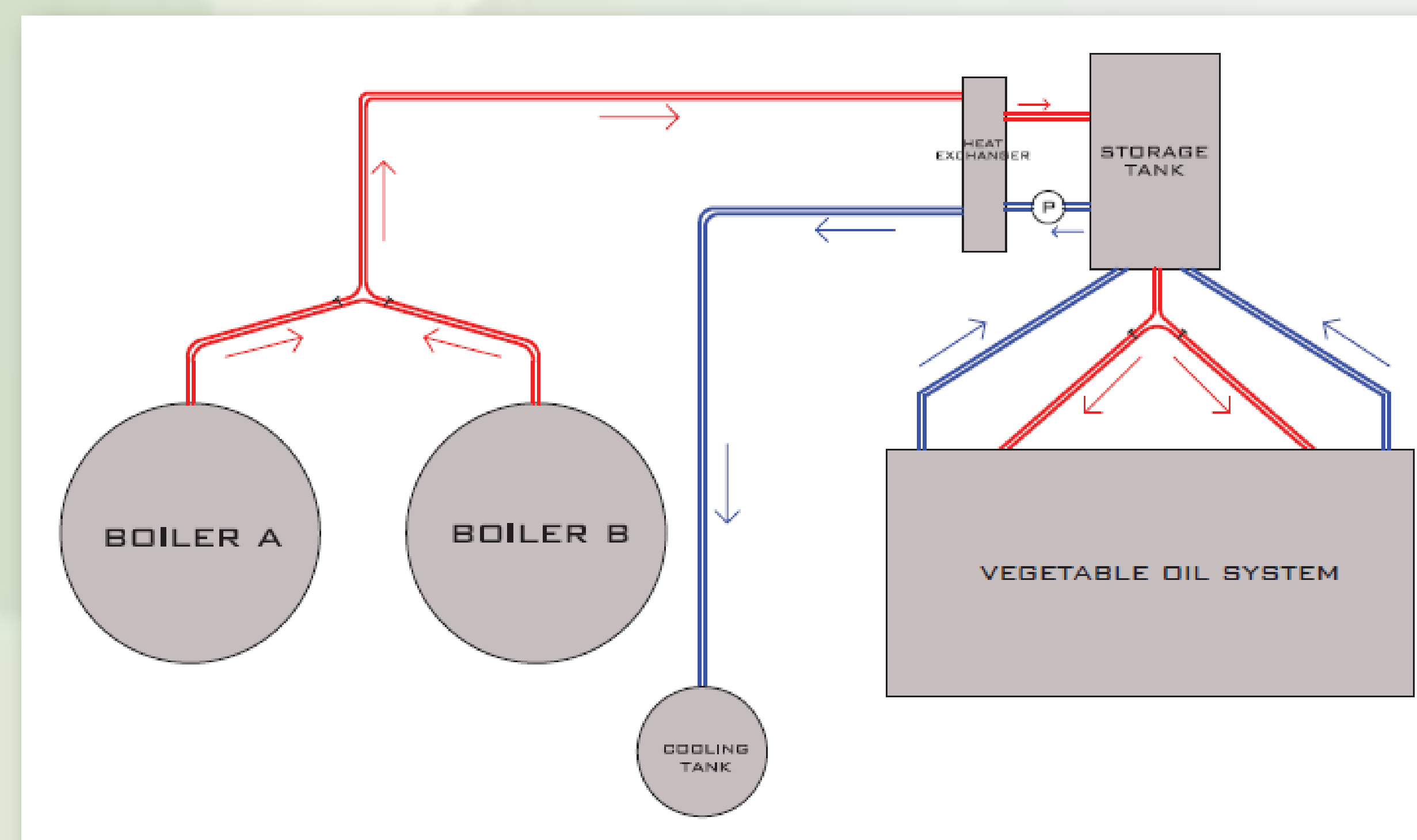
- Location for the systems.
- Cost of components.
- Developing a method to heat the oil sufficiently.
- Liability issues.

### Results:

- Designed a system using solar thermal to heat waste vegetable oil, filter it and use it in a diesel generator.



- Designed a system using the heat from boilers in the Co-Gen facility.



### Conclusions:

- Using waste vegetable oil in a diesel generator is a viable way of obtaining energy, but the temperature must be high enough and the generator needs to start and finish on diesel fuel.

### Future Work:

- Build a biodiesel system.
- Build a vegetable oil system after selecting a convenient location.
- Perform experiments with the system.



Photo of Loyola's Biodiesel System