CCAT Solar Array Upgrade

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Abstract:

This purpose of this paper is to propose a project to analyze and upgrade the solar PV array at Humboldt State's Campus Center for Appropriate Technology. CCAT is a student funded, and managed organization that demonstrates appropriate technology in a residential setting. CCATs current panels are dating back to 2001, before the home was moved from its original location where the Behavioral and Social Sciences building now stands. In the spring of 2019 CCAT replaced their defective inverter with a new Fronius Primo 3.8 kW. Currently the system is producing solar energy, but improvements in efficiency could be made by upgrading the solar PV panels. The goal of this project is to analyze the current system and installation setting at CCAT, and to optimize the energy output of the system.

1. Project Description:

   The purpose of this project is to optimize the solar PV system at Humboldt State's Campus Center for Appropriate Technology. CCAT has been an organization at HSU for the last 40 years, and has represented and help support the campuses goals regarding sustainability. CCAT has a goal of becoming a Net Zero Energy facility, with the hopes of putting clean renewable energy back into the grid. It has been recommended to CCAT to upgrade their solar PV panels in order to optimize the current system. The current PV panels (8 ASE-300-DGF/17 modules at 300 Watts each) are were originally installed in 2001. The system is using a new Fronius Primo 3.8 kW inverter.
2. Need Statement: How does the project address HEIF's mission? Which of HEIF's goals does the project meet and how? Minimum of one goal must be fulfilled by the proposed project.

   This project meets HEIF's mission by involving students in the development process. CCAT itself is a student ran organization that is visited by hundreds of students every week, so a HEIF project at CCAT would have a direct relationship with students. The system will be monitored and maintained by students with the help of Facilities Management. With the support of CCAT, HEIF will be able to produce quantitative and qualitative results based on how the efficiency of the system will change after the project.
3. Outcome: What are the tangible expected results and benefits of the project? What are the student learning outcomes? How will the project's effort to reduce the environmental impact of energy be ascertained?
4. Partners: Identify campus entities, HSU students, faculty and/or staff who would support his project. This section is optional, but highly recommended.

Appendix: This section is also optional but could include any of the following supporting material: methodology for determining outcomes, relevant internet links, resources, product information, specifications, economic analysis, and pictures or schematic diagrams or data.