

Semesterly Report

*Thank you for your commitment to green initiatives at the University of Illinois. One of the ongoing requirements listed in the terms of the funding agreement for your project is the submission of semesterly reports with key information about your project. In addition to this form, please provide additional financial documentation and/or progress photos if available.*

*Please be as accurate as possible in describing the project (including possible setbacks or challenges in meeting the initial goals of the project). Not fully meeting your project's goals will not disqualify you from making future funding requests as long as your reports are as complete and accurate as possible. If you have any questions, please contact the Student Sustainability Committee, at* *sustainability-committee@illinois.edu**.*

**Project Name:** High Resolution Temperature Profiling and Thermal Analysis for Geothermal Energy Alternatives

**Date of Report Submission:** 1/10/2018

# Project Purpose:

Establishing a geothermal exchange experiment for evaluating the feasibility of geothermal energy on campus, and sharing the knowledge with campus and community for future geothermal energy development. The following report only include the updates after previous report on 8/16/2017.

# Detailed Accounting of Expenditures to Date:

The budget has been managed within the revised scope of the project since previous report on 8/16/2017. We had a minor change on the student activity in our project to compliment a new student SSC project to develop TRT device which can be used in our Geothermal Research Station. The student project is having six month delay due to student departures. The student activity on our project is to compliment that student SSC project in the end, so this project end-date has been approved for 6-month extension from 1/31/2018 to 7/31/2018. The only budget items after previous report are student hourly salary. The detailed budget with the latest charge on 9/30/2017 are shown in the attached file (1-303692-547005-547080-547A00-2017-09.pdf).

# Project Progress to Date:

Three students involved in this project were awarded funding for a student led project from the SSC to develop an innovative Thermal Response Testing (TRT) Device by collaborating with students from the University of Wisconsin – Madison. The final stage of this project have been modified and approved by the SSC to help our students extend further the learning experience and broader impacts. However, the student TRT project has experience significant delay due to student departures and difficulty of involvement caused by student family reason. Nevertheless, this team has devoted all of the efforts to help TRT student project to accomplish a TRT prototype in demonstrating condition. Since all of the student members on the TRT student project have graduated, this project team will enhance the TRT unit from demonstrating condition to operational condition by using the rest of the fund from both projects. The enhanced TRT unit will be functional for future class and project experiment as the latest project scope stated.

# Student Involvement and Outreach to Date:

The three students involved this project have graduated with accomplishing two project reports for ENG 573 with the TRT student project. The undergraduate student hired from CEE, Ms. Carolyn Zhang Cai, was only involved for a few weeks as the attached budget sheet shown due to her family reason and school work. A CEE doctoral student, Mr. Franklin Holcomb (fholcom2@illinois.edu), has been using the Geothermal Research Station to develop his Ph. D. dissertation.

# Marketing and Promotion Efforts to Date:

The project team leveraged the initial data from the Energy Farm in a proposal to the DOE Office of Energy Efficiency and Renewable Energy. The proposal was awarded with $720,000 to conduct feasibility study on using geothermal energy on campus and nearby community in district scale. More details about this project are available at:

https://www.isgs.illinois.edu/achievements/october/isgs-receives-720000-award-doe-geothermal-research

Additional requests have been made by national and international research institutes to visit the station. Since the last report, the team has hosted scientists from University of São Paulo (Brazil), Chinese Academy of Sciences (China), China University of Mining and Technology (China) to visit the Geothermal Research Station. It is expected scientists and engineers from the Indiana Geological Survey, University of Western Ontario (Canada), and National Chiao Tung University (Taiwan) will visit in 2018.

One peer-review journal manuscript is in review based on the geothermal experiment, including the data from this project. Several presentations about the research have been made by the team at symposia, conferences, and workshops.

# Additional Comments:

This project's successful contributions were only possible because of the strong support received from the SSC, UIUC Energy Farm, Facilities & Services (F&S), and many other campus units. We are planning to share more photographs and video of the research activities in the near future.