# *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:** Submetering for Supporting Energy Savings and Sustainability

**Date of Report Submission:** 7/12/2022

**Project Purpose:**

Please explain in brief the original purpose and goals of this project.

This project aims to outfit the second floor of the Hydrosystems Laboratory with submetering devices in building panels to collect granular and fine data per space/room, including HVAC/mechanical, lighting, and receptacles loads at 15min intervals. Historical data will be available for exporting – upon request – from the eDNA system.

**Detailed Accounting of Expenditures to Date:**

Please detail your expenses to date. Feel free to attach an additional spreadsheet as needed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Item**  | **Budgeted cost** | **Incurred**  | **Remaining** |
| Equipment & Construction Costs | Sub-metering purchase and installation | $ 75,000.00 | $ 0.00 | $75,000.00 |
| Personnel & Wages  | Engineering design work  | $ 5,000.00 | $2,353.09 | 2,646.91 |
| Student Assistantship | $ 9,198.52 | $ 5,267.39 | $3,931.13 |
| Total  |  | **$89,198.52**  | **7,620.48** | **81,578.04** |

**Project Progress to Date:**

Please summarize your project’s progress in relation to the milestones and target dates listed in your original application.

The status and summary of project accomplishments are listed below.

**Task #1**: Evaluating and identifying existing metering and branch circuit loads

Planned completion date (updated): 8/15/2022

Status: In progress

*Accomplishments:*

* The panel circuits for the lighting and receptacle loads have been identified from existing building drawings. It was also found that the building has no metering for the lighting and receptacle loads.

*Work in progress:*

* Identifying the panel circuits for the HVAC/mechanical load is work in progress. The building automation system (BAS) of the Hydrosystems Laboratory (a new building) has not been fully commissioned. We are in the process of accessing the BAS to explore what meters are available and could be useful to determine HVAC/mechanical load and which additional meters should be purchased and installed.

**Task #2**: Engineering design

Planned completion date (updated): 8/15/2022

Status: In progress

*Accomplishments:*

* The scope for the lighting and receptacle load metering (e.g., level of fine data per room/area) has been defined based on existing circuit distribution and budget availability.

*Work in progress:*

* The HVAC/mechanical load metering scope is work in progress. Because this load cannot be obtained directly from the building electrical panels, and the HVAC/mechanical system is integrated by many components that supply air to the whole building, we are currently studying feasible alternatives for getting fine energy consumption data (e.g., per floor and room/area) and in an optimal way.

**Task #3**: Contacting vendors for reliable metering and estimates

Planned completion date (updated): 8/30/2022

Status: In progress

*Work in progress:*

* The estimate for the lighting and receptacle load metering is work in progress. We reached out to the F&S department that will contact the vendors; and we expect to have the first estimate in August.

Comments:

* The HVAC/mechanical load design estimate has not started because it is still under the design phase.

**Tasks #4-7**:

The status for Tasks #4-7 is “Not started”, because they depend upon the completion of Tasks #1-3. The updated planned completion dates are shown in the following table.

|  |  |  |
| --- | --- | --- |
| *#* | *Task Name* | *Planned completion date (updated)* |
| 4 | Purchase Order to purchase materials | 09/01/2022 |
| 5 | Submetering installation | 10/15/2022 |
| 6 | Utilities programming and eDNA connection | 10/15/2022 |
| 7 | Testing of Submetering | 11/01/2022 |

**Student Involvement and Outreach to Date:**

How have students been involved in your project so far?

The students will be involved in the project experiments upon the completion and integration of the submetering and testing it in a graduate room on the second floor of the CEE Hydrosystems Lab. At least 54 students that occupy this space will be able to directly participate in the experiments that aim to test and validate the proposed system. Many additional undergraduate and graduate students will have access to the data and the testbed, as follows.

With the marketing and promotion efforts, we expect the students to use the building as a testbed for experiments seeking to test and validate energy-saving strategies, policies, or innovative and technological solutions toward sustainability. In addition, we expect students to use the energy consumption data from the F&S platform (1) to apply energy analytics on real-time data to model building energy consumption and develop/test algorithms for energy optimization using real-time data; and (2) in class projects to foster sustainability awareness, creativity, and innovation towards energy savings and improved Campus sustainability.

**Marketing and Promotion Efforts to Date:**

What, if any, marketing and promotion efforts have you conducted so far?

We have already planned for several marketing and promotion efforts which will take place in Fall 2022, including hosting a campus-wide seminar that aims to share our efforts toward sustainability on Campus and participating in the “Green Quad Day” event. In addition, we plan to release information on the submetering infrastructure and availability of the historical data – upon the project completion – to the UIUC community through the F&S website, news release, iCAP portal, and stickers around the building to access project information and details.

**Additional Comments:**

Any additional comments/relevant information for the semesterly report

N/A