

Compilation of Expenditures for the Hawai‘i Gateway Energy Center

Prepared for the

U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability

Under Award No. DE-FC26-06NT42847

Hawai‘i Distributed Energy Resource Technologies for Energy Security

Subtask 2.2 Deliverable #3

By

Hawai‘i Natural Energy Institute
School of Ocean and Earth Science and Technology
University of Hawai‘i

March 2009

Compilation of Expenditures for the Hawai'i Gateway Energy Center

1.0 Introduction

As part of the Hawai'i Distributed Energy Resource Technologies for Energy Security project, the Hawai'i Natural Energy Institute (HNEI) entered into a lease agreement with the Natural Energy Laboratory of Hawai'i Authority (NELHA) for a lease at the Hawai'i Gateway Energy Center (HGEC) located on the Big Island of Hawai'i (Figures 1 & 2). There were a number of reasons for developing this lease agreement.

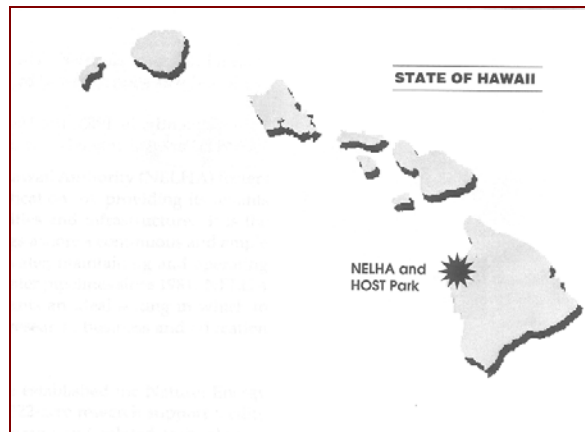


Figure 1: NELHA Location



Figure 2: Gateway - Main Building

HNEI had been involved from early in this decade in obtaining funding to erect such a facility. In this capacity, HNEI managers and staff served on a number of advisory committees that enabled this facility to be constructed. Following the completion of the construction, it was planned that HNEI would be the lead in populating the facility with distributed energy technology projects – both developmental and for demonstrations as

appropriate. The following section is a brief summary of our project attempts to site more technologies at HGEC.

2.0 Current Status

It initially appeared that the HGEC would be an ideal location for demonstrating new renewable energy technologies. However, as events transpired, we were not able to make use of the facility in ways that we had planned for this project. It was difficult to bring in private sector technology providers for some of the work that we wished to do. Some private sector entities which we have discussed in earlier reporting to the National Energy Technology Laboratory (NETL) chose to simply develop separate contracts with NELHA for deploying their technologies. None of these are currently in operation, it should be noted.

Therefore, we sub-leased some of the space to other projects, such as for a bio-energy algae effort. Additionally, some of the build-out costs ended up being more than we chose to fund. As a result, very little effort was expended on upgrading this facility as it would relate to this project.

We did, however, have some successes in placing technologies on the Big Island for demonstrations. Due to site specificity issues, and related opportunities to make use of existing infrastructure, it was more cost effective to utilize these other facilities on the Big Island. For example, some of our hydrogen fuel cell and storage activities, reported in a previous document to NETL, were conducted at Kahua Ranch. This is because the infrastructure was already in place for making measurements. Additionally, it was also more cost effective to locate related demonstration and deployment projects elsewhere. For example, a hydrogen-powered fleet of vehicles will be used at Volcanoes National Park. Due to the long distance from NELHA at Keahole Point to the national park – over one hundred miles – the refueling stations will be located more closely to the park activities.

3.0 Cost Summary

The following is a compilation of the costs for space that have been charged to the project, since we developed the contract with NETL. The space consists of the following elements:

1. Shared office space comprised of 95 square feet at a monthly rate of \$95.00 (Figure 3).
2. 1,848 square feet of laboratory space at a monthly rate of \$1,386.00 (Figure 4).
3. 4,020 square feet of outdoor open space at a monthly rate of \$1,005 per month (Figure 4).

The total monthly rent is \$2,486.00. As of February 2009, the total expenditure to the current project and its amendments has been \$57,178.00.

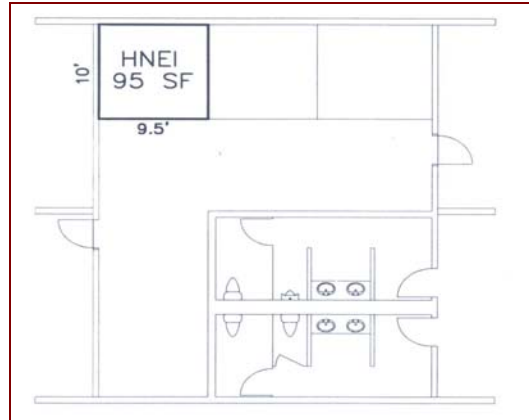


Figure 3: Shared Office Space

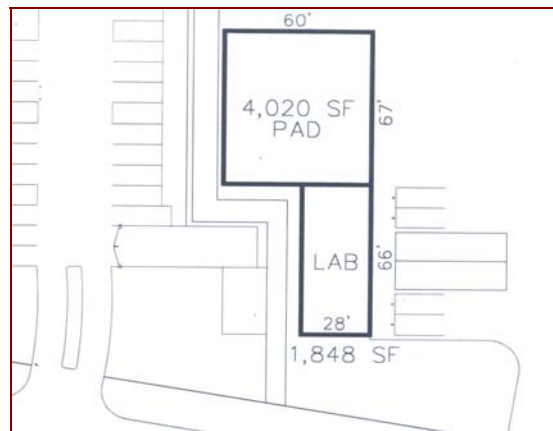


Figure 4: Lab and Outside Equipment Pad

4.0 Future Considerations

It is evident from our efforts since 2006 that we will need to make some long-term decisions on whether or not to continue with this leasing arrangement. The benefit to the U.S. Department of Energy is that we can eventually make more effective use of a facility that was constructed with departmental funding. However, it may be that the costs of moving forward are sufficiently high that we will pursue other more cost-effective options. As stated in Section 2.0, a number of these are continually presenting themselves to HNEI. Thus, it is fiscally prudent to work at other sites where build-out costs are small compared to those at HGEC.