

UNIVERSITY OF HAWAI‘I SYSTEM ANNUAL REPORT



REPORT TO THE 2018 LEGISLATURE

Annual Report on the
University of Hawai'i Green Special Fund

HRS 304A-2181

December 2017



UNIVERSITY of HAWAI'I®

Report to the Hawai'i State Legislature Pursuant to Act 186, SLH 2017 HRS 304A-2181

The governor signed into law Act 186 (SLH 2017), codified as HRS §304A-2181, which established the University of Hawai'i Green Special Fund (GRF) *“to collect and expend revenues that will harness savings realized from energy efficiency investments and other sources of revenue to reinvest into further measures to reduce energy consumption and operating costs towards achieving the University of Hawai'i's net-zero energy goal.”*

This legislation established an innovative and proven mechanism for universities and other large institutions to reduce operating costs and environmental impact while promoting education and engaging stakeholders.

The GRF is an internal fund that provides a framework for direct sources of capital to be invested in energy efficiency, renewable energy, and other sustainability projects that generate cost savings. These savings are tracked and used to replenish the fund for the next round of green investments, thus establishing a sustainable funding cycle while reducing operating costs and environmental impact. To date, the GRF has not been directly funded by the legislature or the University; instead, its only current source of funds are energy rebates.

This report details the activities of the GRF as required in accordance with HRS §304A-2181, including:

1. An explanation of how savings were calculated;
2. A review of all the revenues deposited;
3. A review of the rebates, grants, or incentives received; and
4. A review of any other funds that may have been transferred.

SUMMARY GREEN SPECIAL FUND ACTIVITY (01/01/17 - 12/31/17)	
Current Balance	\$87,237.75
Total Revenues Deposited	\$87,237.75
Total Expenditures	\$-
Total Encumbrances	\$(54,919.00)
Projects funded	1



SUMMARY OF 2017 ACTIVITIES

REVENUE

During its first year, the GRF primarily functioned as a central repository into which rebates from energy efficiency investments were deposited. A total of \$87,237.75 in rebates were received from Hawai'i Energy in 2017, with over 50% of this amount being collected in the form of a \$47,250.00 rebate check payable for Heating, Ventilation and Air Conditioning (HVAC) upgrades completed at the Stan Sheriff Center, UH Mānoa campus.

REBATES, GRANTS & INCENTIVES RECEIVED FOR PERIOD 01/01/17 - 12/31/17		
Project Name	Amount	Rec'd From
UH Mānoa submeter installation	\$9,000.00	Hawai'i Energy
UH Mānoa FROG Project, Bld 1257 A&B ¹	\$914.00	Hawai'i Energy
Group 2, Var. Bldg	\$2,000.00	Hawai'i Energy
UH Mānoa FROG Building A/B	\$914.00	Hawai'i Energy
UH Mānoa FROG Building A/B	\$1,760.00	Hawai'i Energy
Mānoa Exterior LED Lighting (Parking Lots)	\$4,407.75	Hawai'i Energy
KapCC Culinary Arts Bldg (Custom Lighting)	\$7,492.00	Hawai'i Energy
KapCC Culinary Arts Bldg (HVAC)	\$12,500.00	Hawai'i Energy
KapCC Culinary Arts Bldg (Refrigerators)	\$300.00	Hawai'i Energy
KapCC Culinary Arts Bldg (Ice Maker)	\$200.00	Hawai'i Energy
KapCC Culinary Arts Bldg (Freezer)	\$500.00	Hawai'i Energy
Stan Sheriff Center (HVAC)	\$47,250.00	Hawai'i Energy
TOTAL REBATES, GRANTS & INCENTIVES RECEIVED		\$87,237.75

¹ Read more about the FROG (Flexible Response to Ongoing Growth) buildings, UH's first net-zero energy classrooms here: <http://www.hawaii.edu/news/2016/11/04/first-net-zero-buildings-open-at-uh-manoa/>



CALCULATION OF SAVINGS FOR GRF PROJECTS FUNDED IN 2017

The GRF funded one project in 2017 on the UH Mānoa campus. This project was allocated \$54,919 to replace four -80° ultra-low temperature research freezers with new high efficiency Energy Star compliant research freezers in two labs. Three freezers are located in the Pacific Biomedical Research Center (PBRC) and one freezer is located in the Pacific Ocean Science and Technology (POST) building.

The University of Hawai'i Office of Energy Management (OEM) installed plug-level energy monitors on two of the existing freezers to be replaced in PBRC. The existing freezers were monitored between 10/03/17 and 12/31/17 to establish the baseline of existing freezer energy consumption. This monitoring of a 50% sample (2 out of 4) along with third party verification from Hawai'i Energy validates the energy savings of the more efficient model.

Currently, these four freezers consume approximately 105 kWh of energy per day. The new replacement freezers are engineered to use just 33% of the energy consumed by the current models, consuming a total of approximately 34.4 kWh per day. This will reduce energy consumption by approximately 70 kWh per day, which is estimated to save UH Mānoa approximately \$96,398 over the next 15 years.²

After the replacement freezers are installed, OEM will continue to monitor energy consumption for a minimum of 365 days to measure and verify the freezers' actual energy consumption and the estimated energy savings. Full documentation of M&V protocols including baseline data gathered, project summary, financial analysis and technical specifications are held on file.

ADDITIONAL GRF PROJECTS IDENTIFIED

This pilot project of four research freezers allowed the Office of Energy Management (OEM) to determine appropriate protocols for identifying, analyzing, and vetting projects eligible for funding from the GRF. It also allowed OEM to determine effective methods of Measurement & Verification (M&V) of energy savings on in-house energy efficiency projects, and integrate the projects with the 6-year Capital Improvement Program Plan and upcoming Energy Savings Performance Contracting projects.

While scoping this pilot project, OEM identified an additional 193 ultra-low temperature research freezers at UH Mānoa, including at the John A. Burns School of Medicine, that are potentially eligible for replacement with high efficiency Energy Star compliant research freezers that can yield additional long-term energy efficiency savings. A number of other projects ranging from LED lighting retrofits to HVAC controller upgrades are currently being scoped.

RECOMMENDATIONS FOR THE 2018 LEGISLATIVE SESSION

OEM recommends that HRS §304A-2181 be amended to 1) remove the requirement that any expenditure equal to or greater than \$167,000 be approved by the state legislature, and 2) allow for appropriations made by the state legislature to be an eligible source of deposits into the UH Green Special Fund.

² Based on projected energy cost inflation of 3%
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