



KA HEI

Newsletter

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Untying maile lei:
AS Dann Carlson,
Senator Michelle Kidani
and Brian Kealoha

Maile Lei Marking a PV Milestone for Ka Hei

THE MAILE LEI HAS BEEN UNTIED and construction for solar photovoltaic parking shade structures has begun at McKinley High School. On May 21st, 2015, Senator Michelle Kidani, Representative Chris Lee, Assistant Superintendent Dann Carlson, McKinley Foundation President Neal Takamori, OpTerra Vice President John Gajan, and OpTerra Hawai'i Regional Manager Brian Kealoha commemorated this project milestone at the groundbreaking ceremony on campus.

McKinley High will receive 480 PV modules in canopies above the parking lot for an estimated savings of about 186,000 kilowatt-hours per year to reduce the school's electrical load by about 13 percent. **This groundbreaking marks the beginning of the DOE's progress towards more than three Megawatts of solar PV construction**, with 56 approved net energy metering agreements with the utility for projects at 51 O'ahu schools.

“Today’s groundbreaking marks a milestone in creating a sustainable future for Hawai‘i’s educational system. These improvements combined with our standards-aligned curriculum will provide real world, project-based learning opportunities and perhaps inspire students to pursue careers in energy and sustainability.”
—Brian Kealoha, OpTerra Hawai‘i Regional Manager



Dann Carlson, Assistant Superintendent OSFSS, addresses the crowd at Ka Hei Ground-Breaking Ceremony.

More than Halfway to Meeting Ka Hei’s Year-End Construction, Community, and Classroom Goals

2015 Ka Hei Goals:

2 MEGAWATTS OF RENEWABLE ENERGY INSTALLED

• **First Power Purchase Agreement (PPA)** was executed in April for more than **1.1 Megawatts of photovoltaic (PV)** systems across 9 O‘ahu schools, with construction starting this summer

• **2 more requests for proposals** are in progress and will award an **additional 2.1 Megawatts of PV** systems via PPAs across an additional 16

O‘ahu schools, with construction to commence later this year

• **72 net-energy metering (NEM) applications have been submitted** to Hawaiian Electric for **64 O‘ahu schools** (note: some schools have more than one PV system)

• **56 NEM applications have been approved** by Hawaiian Electric for **51 O‘ahu schools** (note: some schools have more than one PV system)

2015 Ka Hei Goals:

5 MEGAWATT HOURS OF ENERGY REDUCTION THROUGH EFFICIENCY MEASURES

• **2 O‘ahu schools** have been selected for a **pilot campus-wide lighting retrofit with high-efficiency light-emitting diode (LED) systems**

• **75 O‘ahu schools** have had **campus-wide lighting audits**. These results identified the ability for the DOE to cost-effectively reduce lighting

consumption by more than 50 percent at said schools

• The first **30 of the 75 schools that have completed lighting audits** have the potential to reduce their aggregate energy consumption by **more than 5 Megawatt hours**

• **26 O‘ahu schools** have had **energy audits** conducted that identified opportunities to save energy through measures beyond lighting

Inroads in Innovation:

Net-Zero Integrated Energy Campus Study Completed

SIGNIFICANT PROGRESS HAS BEEN MADE to support the DOE’s efforts to achieve energy self-sufficiency. A thorough net-zero integrated energy campus (also commonly referred to as a microgrid) assessment has been completed at five school sites. **This preliminary design and cost-savings analysis provides an in-depth look at the feasibility of integrating energy conservation/efficiency measures and renewable generation coupled with an intelligently controlled energy storage system.**

In short, by implementing projects that persistently reduce energy consumption and then meeting the remaining energy needs with photovoltaic systems augmented with an energy storage system, schools will be able to optimally power their entire campus using only sustainably-sourced energy. This approach provides the DOE with both energy resiliency and heightened efficiency.



Logo Contest Winners L to R: Hayden Guest of Ms. Jennifer Gagen’s class at Hanalei Elementary; Lisa Watanabe from Ms. Kathy Lin’s Highlands Intermediate class; Aiea High Schooler Charles Ombao, student of Mr. Darren Rey; and Tiffany Noda, also of Ms. Kathy Lin’s Highlands Intermediate class.



Grand prize winner, Tiffany Noda, and her mother, Karen Noda.

STEM to STEAM:

Exploring Ka Hei through Art

325 INCREDIBLE STUDENT ENTRIES were received for consideration in the Ka Hei Logo Contest that ran from the end of January until mid-March. Different islands across the state and all grade levels were represented, showcasing an abundance of talent. Some of the stand-out imagery combined artistic talent with a deep understanding of how Ka Hei brings an extraordinary supplementary education on environmental topics to life in the classroom. A diverse judging panel from industry, education, and the non-profit worlds came together in April to select winners – mahalo for your support: Ms. Kalae Akioka, DOE Hawaiian Immersion Program; Ms. Nancy Budd, Board of Education Member; Mr. Alex Harris, Senior Program Officer for Education at the Harold K. L. Castle Foundation; Ms. Natalie McKinney, Director of Kōkua Hawai‘i Foundation; Mr. Rick Ralston, founder of RIX and Crazy Shirts; and Ms. Lauren Tonokawa, Communications at Energy Excelerator.

On May 11th, 2015, student artists were celebrated at an unveiling ceremony of their logo designs. The Ka Hei Logo Contest Unveiling displayed Tiffany Noda’s winning logo, along with grade level first place winners from elementary, middle and high school. Students received well-deserved gift bags, including a Jack Johnson signed CD, a home energy monitor kit, and ample swag from Kōkua Hawai‘i Foundation, Blue Planet Foundation and Kupu Hawai‘i. Tiffany took home the most prized item – a Jack Johnson signed ‘ukulele.



Education BY THE NUMBERS

103

educators have been involved with Ka Hei-related professional development sessions or activities.

880

students have experienced hands-on learning opportunities through at least one Ka Hei lesson.

50 EDUCATORS FROM 17 SCHOOLS

on Kaua‘i, O‘ahu, Moloka‘i, Maui, Lāna‘i and Hawai‘i Island have been trained on the web-based Defined STEM curriculum.

325

students submitted designs for the Ka Hei logo design contest.

INSIDE THE CLASSROOM: PROFESSIONAL DEVELOPMENT

ENSURING THAT KA HEI HAS IMPACT in the classroom requires ongoing professional development. Through partnerships with community organizations, like STEMworks, educational resources are put in the hands of our teachers, so that they are empowered to bring sustainability

concepts to life.

In April 2015, OpTerra’s education team **presented the DefinedSTEM platform at the STEMworks Conference** in Wailea, Maui. Teachers received professional development credits, while students learned about a wide variety of STEM topics.

OpTerra’s education team is committed to spreading Ka Hei resources across the islands, **recently sharing learnings at the monthly Wa’a Talks**. A rotation of expert educations were featured talking about how to incorporate the Malama Honua (“to care for our earth”)

World Wide Voyage in the classroom. Participating teachers were eager to learn more and involve their schools in the Ka Hei program, most immediately through implementation of a set of energy lessons with Hōkūle‘a and Hikiana-lia in mind.

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COMMUNITY
PARTNERS



“ The Kupu RISE Program’s partnership with Ka Hei has created opportunities for youth seeking hands-on skills and potential employment opportunities to build Hawai‘i’s green workforce.”

–Nicole Fisher, Kupu RISE Program Director

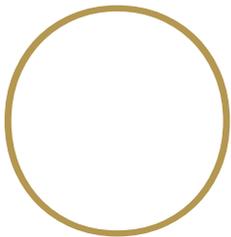


Chris Buto,
Phil Atoigue,
Jayleen
Marar and
Paul Jackson

THANK
YOU

to the **Hawai‘i STEM Conference** and the **Wa‘a Talks group** for allowing us to present our Ka Hei inspired lesson plans and hands-on activities to your educators. Ka Hei is focused on spurring sustainability goals for the DOE and in doing so, creating connections in the community. The public, charter and private schools that we were able to reach through these events is a testament to the power of creating community through education and sustainability.

Kupu Hawai‘i Interns Learn on the Job

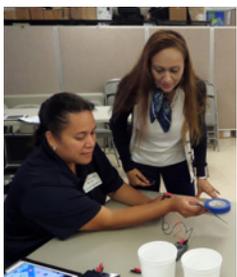


ONE OF THE GOALS OF KA HEI is to **provide real-world learning opportunities to Hawai‘i’s youth** through community partnership. OpTerra Hawai‘i has partnered with Kupu Hawai‘i to provide young adults in the RISE Program with an opportunity to conduct energy audits at 26 O‘ahu schools to cultivate their green workforce skills and knowledge through a paid internship. Under the supervision of OpTerra engineers, four Kupu interns collected energy data, photo-documented equipment, and interviewed school staff to gain a deeper understanding of how energy is used on O‘ahu DOE campuses.

Kupu and OpTerra are developing ways to grow the reach of Ka Hei for Hawai‘i’s youth in current and future phases of work.”

Bebi Davis is one of the pioneering educators participating in the pilot group who trained on and implemented Defined STEM – one of the many standards-aligned curriculum tools that ensures Ka Hei’s impact permeates the classroom to support student success.

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KA HEI
PIONEERS



Bebi Davis standing

“ Defined STEM is a platform for project-based teaching and learning across content areas through a STEM lens. The performance tasks and literacy tasks are aligned to standards and promote effective solutions to make relevant real life connections to students and 21st century learning skills. It engages student’s intellectual curiosity and innovativeness.”

–Bebi Davis, Ph.D., STEM Resource Teacher,
Kaimukī-McKinley-Roosevelt Complex, Honolulu District Office