As responsible energy management becomes a more pressing global issue, so does the Ka Hei program grow in meaning and impact for the State of Hawai‘i. Racing toward the Hawai‘i State Department of Education’s (DOE) goal of powering all schools and facilities across the Islands with 90 percent clean energy, 2015 was in large part a year of meeting and exceeding important milestones.

One of the shining stars of the Ka Hei program has been its engagement of students and teachers through real-world learning. In 2015 alone, hundreds of teachers participated in professional development trainings that facilitate lesson planning around STEM and sustainability themes, teaching our keiki to become better stewards of our community and environment.

Meanwhile, in the face of changing rules and rates that are challenging broader implementation of renewable energy, innovative solutions such as net zero campuses and energy storage are being explored and accelerated as part of the Ka Hei program. These efforts, along with numerous other energy efficiency measures, have helped the DOE achieve a landmark 50 awards through the EPA’s Energy Star certification program.

The more tangible progress we make — like these achievements from the past year — the more awareness and interest we generate around the Ka Hei program. In fact, we’re already seeing significant increases in demand for professional development training and energy efficiency work. With your valued support, this momentum will continue to build. Though there is still a lot to do, 2016 promises to be an even more powerful year than the last for the Ka Hei program and all those it touches.

Mahalo for your help in improving our schools and bettering our world!
**Ka Nānā Hou: Kau ka Makani**
A Year in Review: Powering Progress Across Our Islands

### 2016 KA HEI GOALS
- 20,000 PV modules will install to provide an aggregated PV system of 6,000 kW across our schools.
- 8,000,000 kWh projected amount of clean energy produced annually from PV systems built in 2016.
- 1,000 classrooms retrofitted to efficient LED lighting.
- 4,000,000 kWh of energy reduction from efficiency measures.
- 1,742 cuts off our roads through 8,275 tons of avoided GHG emissions.
- 65 local partners and subcontractors engaged through Ka Hei.
- 1,300 teachers engaged.
- 28,600 students participating in the program.
- 50 lesson plans implemented.
- 265 schools engaged.
- 10 Professional Development sessions.

### Professional Development Sessions
*2015 Goal:* 33 sessions delivered to educators
- Two-day hands-on & standards-aligned workshops train teachers to deliver STEM and sustainability activities to their students.
- **Achievement:** 100%.
- **Islands:** O'ahu (22), Maui (3), Hawai'i (2).

### Teacher Engagement
*2015 Goal:* 544 teachers engaged through PD and Ka Hei activities
- Educators receive training, resources and a wide network of support to integrate STEM and sustainability in their classrooms.
- **Achievement:** 100%.
- **Islands:** O'ahu, Maui, Moloka'i, Hawai'i, Kaua'i.

### Campus Reach
*2015 Goal:* 27 audits completed
- 25% of schools engaged through PV activities and content.
- **Achievement:** 100%.
- **Islands:** O'ahu (3), Maui (1), Hawai'i (2).

### Campus-wide Comprehensive Energy Efficiency Audits
*2015 Goal:* 7 audits completed
- Whole school engagement through PAs.
- **Achievement:** 100%.
- **Islands:** O'ahu, Maui, Hawai'i, Kaua'i.

### Lighting Audits
*2015 Goal:* 18 audits completed
- **Achievement:** 100%.
- **Islands:** O'ahu, Maui, Moloka'i, Hawai'i, Kaua'i.

### LED Pilot Schools
*2015 Goal:* 2 pilots operated
- **Achievement:** 100%.
- **Islands:** O'ahu, Maui, Moloka'i, Hawai'i, Kaua'i.

### NEM Application Approvals
*2015 Goal:* 82 LED NEM approved NEM applications.
- **Achievement:** 100%.
- **Islands:** O'ahu (31), Maui (2), Hawai'i (2).

### Clean Power (kW) from PV Installation
*2015 Goal:* 1,520 kW constructed and/or built.
- **Islands:** O'ahu.

### Program Scope
- **RENEWABLE ENERGY**
- **EDUCATION DEVELOPMENT**
- **ENERGY EFFICIENCY**
- **COMMUNITY ENGAGEMENT**

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**Student Engagement**
*2015 Goal:* 3,200 students reached
- Logo design contest, tree planting, community and classroom activities reached students across grade levels.
- **Achievement:** 174%.
- **Islands:** O'ahu, Maui, Moloka'i, Hawai'i, Kaua'i.

**Lighting Audits**
*2015 Goal:* 18 audits completed
- **Achievement:** 100%.
- **Islands:** O'ahu, Maui, Moloka'i, Hawai'i, Kaua'i.

**School & Community Presentations**
*2015 Goal:* 25 community presentations, conferences, and activities
- Ka Hei’s reach and resources span from Schools of the Future Conferences, Wa'a Telle, and Green Apple Day of Service, to partners like Defined STEM, Island Energy Inquiry, Maui Economic Development Board and many others.
- **Achievement:** 120%.
- **Islands:** O'ahu, Maui, Hawai'i, Kaua'i.

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**Program Scope**
- RENEWABLE ENERGY
- EDUCATION DEVELOPMENT
- ENERGY EFFICIENCY
- COMMUNITY ENGAGEMENT

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**Expected kWh Savings from PV Systems**
*2015 Goal:* 1,000 kWh projected to be produced annually after 12 PV systems are installed.
- **Islands:** O'ahu.

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**Power Purchase Agreements (PPAs) Executed**
*2015 Goal:* 2 agreements executed.
- **Achievement:** 100%.
- **Islands:** O'ahu, Lāna'i.

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**LED Pilot Schools**
*2015 Goal:* 13 LED lighting retrofit audits.
- **Achievement:** 100%.
- **Islands:** O'ahu.

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**Student Engagement**
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**Program Scope**
- RENEWABLE ENERGY
- EDUCATION DEVELOPMENT
- ENERGY EFFICIENCY
- COMMUNITY ENGAGEMENT

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**Expected kWh Savings from PV Systems**
*2015 Goal:* 1,000 kWh projected to be produced annually after 12 PV systems are installed.
- **Islands:** O’ahu.
‘Uku liʻi ka pua, onaona i ka mauʻu.
“Tiny is the flower, yet it scents the grasses around it.”

Watering our Flowers:
Professional Development for our Educators

Thanks to the support of DOE principals and administrators, the Ka Hei program has offered 33 professional development sessions to our educators, creating ripples of impact from classroom discovery to practical community benefits.

Over the past semester alone, 74 educators have joined the Ka Hei cohort, participating in our two-day standards-aligned hands-on workshop series. In addition to these ongoing sessions, Ka Hei puts resources – like online dashboards displaying solar photovoltaic energy production on campus – at teachers’ fingertips for real-world learning.

Ka Hei’s reach has also been extended to over 400 educators and administrators through the Defined STEM platform. This online resource provides project-based performance and literacy tasks, while bringing relevancy through career connections. Available to all 256 schools, teachers can sign up for on-going webinars to learn more about leveraging these tools at http://dlrn.us?hawaii.

KA HEI POWERS ABILITY TO MEET NEW NGSS STANDARDS

At the Schools of the Future Conference in November 2015, Lauren Kaupp, Educational Specialist for Science at Office of Curriculum, Instruction and Student Support, explained the transition to Next Generation Science Standards (NGSS) for DOE teachers and showed how NGSS encourages students to understand and apply STEM concepts, rather than passively reading about them. Ka Hei’s educational resources provide teachers with the tools and pedagogy to meet these standards: engaging our students in inquiry-based STEM activities, providing real-world data for analysis, and accessing performance tasks brings relevancy to the scientific concepts learned in classrooms.

Scenting the Grasses
Extending Ka Hei’s Reach to the Community

Pearl City Elementary Green Apple Day of Service

OpTerra brought Pearl City Elementary into a global network that hosts Green Apple Days of Service (GADS) to transform schools into healthy, safe and productive learning environments through specific and local service projects. On September 24, 2015, the entire 3rd grade student body participated in a series of project-based, hands-on activities focused on energy transfer, efficiency in solar panels, and planting kupukupu ferns. The morning tree planting effort replaced foliage strategically removed for construction of solar photovoltaic shade structures.

A New Kind of Homework

Interactive, hands-on energy education sessions will be offered at six schools across O‘ahu in the spring semester, as part of the STEM Engagement Program that involves staff and students across all grade levels. At Mauka Lani Elementary, students explored various lighting technologies and their different efficiencies. Many of our keiki were inspired to apply these classroom learnings at home, by encouraging their families to adopt energy efficiency measures.

COMMUNITY PARTNERS

O‘ahu: March 16–17
To sign up, visit http://surveygizmo.com/r/KaHei_MAR16

COMMUNITY PARTNERS

Pearl City Elementary 3rd grader

This was SO much fun, we had so much fun.”