THE POWER OF KA HEI LIES IN THE PROGRESS IT'S PIONEERING across all of its program elements – with numerous ground breakings and ongoing educational initiatives – major milestones have been met in the first year alone. Campus installations began in July and will continue with an aggressive schedule to commence construction for 100% of the solar PV installations at Phase 1 schools by December 2015. In addition, Kapālama and Kauluwela Elementary Schools are piloting campus-wide LED lighting programs to create improved interior learning environments, with installations completed by the end of this month. These physical upgrades are reflected in the continued professional development program for teachers who will learn how to integrate STEM and sustainability concepts in the classroom. In sum, Ka Hei’s impact continues to scale – making progress towards the more than $18 million expected annual energy savings over 20 years for the above PV and LED projects, and growing the pool of 232 teachers and their 1,736 students who have already benefitted from this powerful program.
**A Bright Future:**

Pilot Lighting Project to be Completed at Two Elementary Schools

Laboratories at Kāʻuluwela and Kāʻapalama Elementary Schools have been upgraded from outdated fluorescent lighting to fully dimmable LED fixtures, paired with new occupancy and daylight sensors, as part of the Ka Hei lighting pilot program. While over a 50% energy efficiency boost provides significant savings in the largest category of energy expenditure for most schools, the pilot’s greater impact is in its long-term improvements to the learning environment.

Preliminary feedback confirms the enhanced comfort and productivity in the classroom. Planned post-installation data logging will corroborate the quantitative energy load reduction projecting 24,700 kWh per year. The two schools’ electricity reduction from LEDs is equivalent to eliminating the entire amount of electricity for 23 average Hawai‘i homes for a year. Unlocking the power of these lighting upgrades at scale will generate operational savings, allow educators to enhance their classroom conditions, and support student success across DOE schools.

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**Ka Hei Energy BY THE NUMBERS**

- **28** PV installations across 24 campuses will begin work by 2015
- **3.3** megawatts the aggregate size of PV from the 28 installations
- **78** net-energy meter applications approved by Hawaiian Electric
- **75** campus-wide energy audits
- **27** schools with completed lighting audits

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**Report Card on Energy Usage: Audits for 27 Schools Wrapped Up**

COMPREHENSIVE ENERGY AUDITS HAVE BEEN COMPLETED at 27 schools on O‘ahu, Maui, and Hawai‘i Island. An audit is a milestone in understanding electrical load profiles for each campus. Engineers conducted spot energy measurements, installed data loggers on select AC equipment, and measured the total school load to understand factors impacting each school’s energy consumption. Primary factors affecting these usage levels include student body size, concentration of AC on campus, use of the commercial kitchen and geographical location. After several additional audits are completed for O‘ahu high schools in the fall of this year, a representative sample of typical campus energy profiles will be established. As this detailed audit phase of Ka Hei concludes, focus will continue to shift towards identification and implementation of energy and resource conservation measures.

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**Electricity Cost Per Student at Audited O‘ahu Elementary Schools**

**Ka Hei Energy**

A Bright Future: Pilot Lighting Project to be Completed at Two Elementary Schools

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**Project Progress**

**REACH Action Plan to Start**

REACH (REDUCE ENERGY AND CHANGE HABITS) is an energy-saving program tailored to DOE schools and based on the 27 completed audits. Through this program, which will start this year and impact all 255 campuses, O‘Terra Energy Services will appoint energy auditors to each school to begin implementing high-impact, low-cost load reductions strategies. REACH will also utilize behavioral tools to help students, faculty and staff change the cause to eliminate energy waste and bring their school closer to the goal of a Net-Zero Energy Campus.

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**Legend**

- PV assessments and construction
- Lighting audits and construction
- Non-Lighting ECMs (Energy Conservation Measures)
- NZEC (Net-Zero Energy Campus) audits and design
- Education

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**Bitly**

[bit.ly/KaHeiProgram](bit.ly/KaHeiProgram)

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**Contact**

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**Hana Hou:**

*Year Two of Professional Development*

Professional Development (PD) sessions are designed to create real and engaging connections between school upgrades and learning opportunities for students and teachers. Educators are provided with a comprehensive STEM energy curricula that is standards-correlated and inquiry-based, with hands-on lessons. Year two PD training will differ from the first with a K-5 specific workshop, which will include lesson plans that have been correlated to elementary standards. In the elementary PD, there will be extensive lab sessions, in-depth discussions of Ka Hei educational offerings, as well as a thorough explanation of the Defined STEM platform, which is available to all 255 DOE schools.

OpTerra Energy Services will host three two-day PD workshops across the state:

- **Maui:** Sept. 19th and 26th
- **Hawai‘i Island:** Oct. 5th - 6th
- **O‘ahu:** Oct. 8th - 9th

To sign up, visit [www.surveymonkey.com/r/KaHei_Oct15](http://www.surveymonkey.com/r/KaHei_Oct15)

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**Ka Hei Outreach Charging Ahead: Spreading the Word**

**Schools of The Future Conference**

**ON NOV. 3-4TH,** Educators and administrators from Hawai‘i’s public, charter and private schools will be attending the 4th annual Schools of the Future (SOTF) conference at the Hawai‘i Convention Center. Presen[ting on behalf of Ka Hei will be Lauren Kaupp of the DOE’s Office of Curriculum, Instruction and Student Support, OpTerra Energy Services; and teachers who have participated in the professional development series. The conference focuses on the idea of transforming existing learning environments within schools to meet 21st century intellect, highlighting the best practices currently taking place in the classroom, and those being planned for the future. To sign up for SOTF, visit [http://sotfconf.org/attend/registration](http://sotfconf.org/attend/registration).

**Mālama Honua**

**ON MAY 21ST,** Ka Hei education project manager, Tori Suarez, met with educators at Kailua Intermediate to provide an overview of Ka Hei and to share Mālama Honua extension lesson plans. Attendees were able to experience some of the games included in the plans, such as Mālama Honua bingo, energy knockout, energy pursuit, energy bumper stickers and bingo. If you’re interested in obtaining a copy of the lesson plans and games, please email KaHei@opterraenergy.com.

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“The Ka Hei and Island Energy Inquiry curriculum reestablished in me an excitement that was buried. The hope of teaching Hawaiian studies with a content rich in science made tears well up. At this point, Island Energy Inquiry became my new game changer.”

—Educator Josette Kaleolani Hanohano, Kaimuki Middle School

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For more information please email: kaheiopterraenergy.com