

# Capturing Energy, Absorbing Knowledge

**HAWAII'S COMPLEX, DELICATE ECOSYSTEMS AND RELIANCE** on imported resources make sustainability a top priority for inhabitants of our islands. Schools have the power to play a leading role in expanding sustainable technology use and sharing these concepts with students and the wider community. The Hawaii Department of Education (DOE) has embarked on

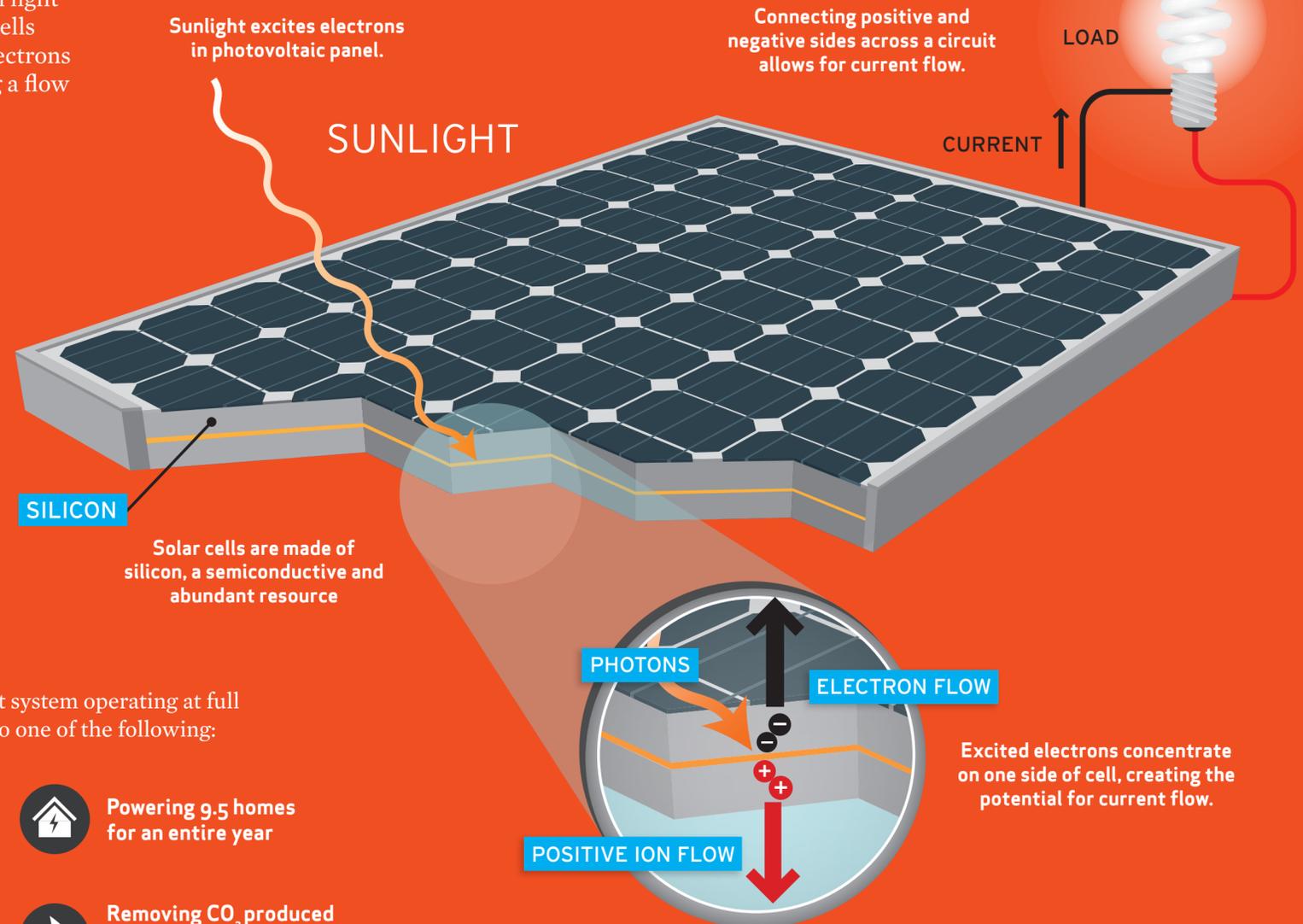
Ka Hei, a five-year program across all 256 schools that offers innovative clean energy solutions and meaningful educational experiences. Solar photovoltaics installed at DOE schools will not only help conserve energy in the immediate future by harnessing energy from the sun, but also secure a healthy environment for future generations.



The Department of Education's Ka Hei program, a five-year endeavor launched in 2014, integrates innovative energy technology with meaningful learning experiences, all while reducing energy costs. Ka Hei aims to transform the learning environment and reduce operational expenses through solutions such as solar photovoltaics, energy storage, smart grids, LED lighting, and water-saving technologies. The comprehensive program reduces the cost and consumption of energy at all 256 DOE schools, while providing engaging educational opportunities for students and the community.

## How Solar Panels Produce Electricity

**SOLAR ARRAYS CONVERT THE SUN'S LIGHT ENERGY INTO ELECTRICITY** through a process known as the photovoltaic effect. When light particles from the sun penetrate solar cells (the building blocks of solar panels), electrons are released within the cells, producing a flow of direct electricity.



### Fun Fact

Although the sun is 90 million miles from Earth, it takes less than 10 minutes for light to travel that distance

### The Power of an Hour of Solar

The energy generated by a 100 megawatt system operating at full capacity for just one hour is equivalent to one of the following:



Carbon sequestered by 56.5 acres of U.S. forest in an entire year



Powering 9.5 homes for an entire year



Removing green house gas emissions from 14.5 cars for an entire year



Removing CO<sub>2</sub> produced by 74,066 pounds of burning coal

### FAQ's

#### Why is our school installing solar panels?

- Solar panels generate electricity year-round without emitting greenhouse gases and serve as a unique learning tool for students and teachers.
- Solar panels are suited perfectly for Hawaii's tropical climate and continue to operate even in the rain. Rain can even help to keep the panels clean of dirt and dust.

#### What are the environmental benefits of solar?

- Solar panels are a clean and reliable energy source that minimize schools' reliance on imported fossil fuels. A single solar panel can reduce carbon dioxide emissions by up to 515 pounds per year.
- By installing these renewable energy solutions schools can reduce their carbon footprint and significantly cut back our operational expenses.
- Savings can be applied to further measures to improve the environment, such as energy efficiency, water conservation, and hands-on sustainability education.

#### What other benefits does Ka Hei provide?

- In addition to reducing our school's energy usage, Ka Hei provides teachers with new tools that incorporate the science behind our campus' solar technology into the classroom.
- Professional development sessions and standards-aligned science, technology, engineering, and math (STEM) curriculum help teachers prepare our students for expanding career opportunities in 21<sup>st</sup> Century fields.

Find out more:

<http://www.hawaiipublicschools.org/ConnectWithUs/Organization/SchoolFacilities>



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