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# the GREEN INSIDER



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TO SAVE  
ENERGY  
PROGRAM



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SAVE ENERGY  
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Semptra Energy utility



# PLANTING A SEED OF CHANGE



JERMAINE BAYLARK

On Wednesday, April 22, Cal Poly Pomona Housing Services held an Earth Day program in the Multi-Purpose Room (MPR) for the campus residential suites. The Earth Day Program consisted of different stations that allowed participants to pick a plant and make it into a plant potter. There were arts and crafts tools set-up allowing participants to design their plant pot however they choose and a soil section where participants could fill up their pot. PowerSave intern Jomel Bautista was in charge of the blender bike and assisted suite residents as they cycled their hardest to operate the blender in order to make smoothies.

This event proved itself to be a great opportunity to educate residents as there was a station designated to teaching participants ways to be environmentally efficient such as limiting shower time and using power strips for chargers instead of wall sockets.



Overall, this event was a great way for residents to socialize over food and refreshments and more importantly discover unique ways to implement environmental efficiency in their lives. There was a turnout of 76 participants with more than half of them signing the Alliance to Save Energy's PowerSave Campus Pledge.

If you'd like to take the PowerSave Campus Pledge, follow the link below:  
<http://powersavecampuscpp.weebly.com/sustainability-pledge-sheet.html>



# ENERGY AUDIT TRAINING



JOMEL BAUTISTA

Do you know what tool to use to when deciding how much lighting an area needs? Do you know what tool to use when analyzing what appliances are worth keeping plugged in? Do you know how to calculate potential annual energy savings? If any of these questions interested you, PowerSave Campus has a certification program in development stages that you will want to participate in.

The Games Room Energy Auditing program will allow students to use energy assessment tools that will allow them to use tools such as a Foot Candle Light Meter or a Kill A Watt EZ Meter. The first tool, Foot Candle Light Meter, is a perfect way to judge how much light an area will need. Certain areas will require more lighting while others will require less. The unit of measurement in this light distance is known as a “foot-candle”. To consider this, imagine sticking a ruler at the end of a birthday candle. One “foot-candle” is the amount of light that the birthday candle projects one foot away. The unit, “foot-candle” then leads to the use of the unit, “lumens”. What you will look for in this assessment is whether or not there is enough lighting or too much lighting in an area and how to address the situation.

Next, you will be trained to use a Kill A Watt EZ meter. At home, this tool can be plugged into a refrigerator, television, computer, or any appliance of that sort. This powerful tool allows its users to check how much energy is being consumed by the appliance. One of the most useful features of this tool is its ability to track down appliances that use kilowatts when the appliance is turned off but is still plugged in. These appliances are known as “energy vampires” for their characteristic of sucking electricity when not in use. For more information on these type of appliances, please refer to Arpy Kasparian’s article, “Boo! I’ve come to suck your energy!” in the November 2014 edition.

Look out for this certification program to launch in Spring 2015 and for more opportunities to be certified in the next academic school year. This is a great opportunity to gain hands-on experience with tools that are used by professionals. Most importantly, an easy way to cut down your electricity bill!

# GREEN ROOMS

- Do you live in the residential halls on campus?
- Are you interested in sustainability?
- Do you want to learn how you can be more sustainable in your room in the halls?

Sign up today to get your room Green Rooms certified by your trusted and trained RA!

<http://powersavecampuscpp.weebly.com/green-rooms.html>



## PHOO KHINE

Researchers at the U.S Department of Energy's Lawrence Berkeley National Laboratory and the University of California, Berkeley have successfully created an artificial photosynthetic process that mimics the natural photosynthesis. Unlike natural photosynthesis in which carbon dioxide and water are required to produce carbohydrates, this artificial photosynthesis uses the same reactants but produces acetate, which is the most common building block for biosynthesis.

The artificial photosynthesis was made possible by the advancement in nanotechnology. Nanowire, which consists of silicon and titanium oxide nanowires, act as an artificial forest in the system by absorbing sunlight. On the nanowire arrays, a population of anaerobic bacteria called *Sporomusa ovata*, is placed to reduce the carbon dioxide absorbed by the nanowires and produce acetate. Afterwards, genetically engineered *E.coli* are placed to synthesize the chemical product.

The nanowire/bacteria hybrid technology has now achieved solar energy conversion efficiency of up to 0.38 percent, which is about the same performance as that of a leaf. As for the product, acetate, it can be used to build chemical molecules and now it produced 26-percent of butanol, a fuel similar to gasoline.

The research team is now currently working to raise the efficiency to three percent. They also aim to reach up to 10-percent efficiency in a cost effective way so that this technology can become economically viable. While fossil fuels such as coal will remain as a significant source for energy in a foreseeable future, this type of breakthrough research will slowly transform our future into a cleaner, greener one.

# WILL THIS BE THE KEY TO A GREENER FUTURE?

## GREEN JOBS & THE ENERGY INDUSTRY

## LYNAE SALGADO

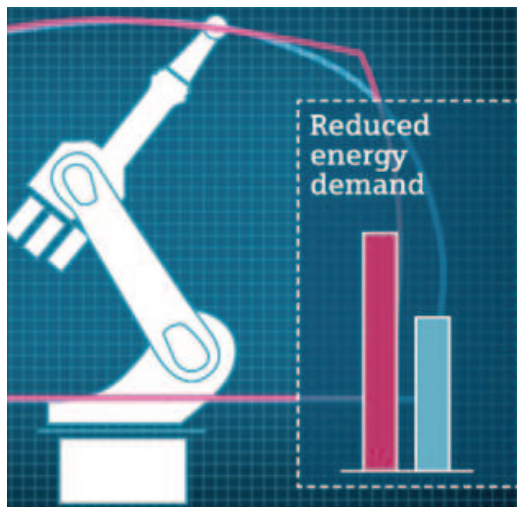
On Earth Day, interns Phoo Khine and Lynae Salgado presented in the Library on Green Careers and the Energy Industry. A different approach to informing students and faculty about the ways of becoming more energy efficient, this presentation gave just a small scope of the endless opportunities of careers related to saving energy. Like many of the people in the audience, you may think this presentation was geared towards engineer, business or biology majors. Ask yourself, who might design that informational graphic about ways to save energy? Who might program some software that monitors your energy usage in your home and automatically sends you weekly updates? There are so many career options in the field of sustainability. Whether they require technical skills or marketing skills, anyone can find a way to contribute to saving energy in their career. The presentation started with a basic introduction of energy, how we get it and how much we use. By the end of the presentation, the audience learned some of the many options of beefing up their resume with some technical classes or certificates. If you'd like to take a peek into some of the information we gave, check out our website.

If you would like the interns to present this information to your class, event, etc., please email us:

[greencampus.cpp@gmail.com](mailto:greencampus.cpp@gmail.com).



# ROBO CONSUMPTION



BRANDON SAUER

As humans continue to advance technology in the Digital Age, it seems to be only a matter of time before the world is inhabited by robots that will assist us in our daily routines. Undoubtedly, there will soon be a wide variety of robots to choose from. Most likely (unless a huge advancement in power comes along), one common factor of all of these robots will be an electronic power source. But if robots were commonplace in society, what sort of impact would they have on the grid?

Most robots today can be found in factories, constructing complex, heavy machinery with the most specific precision. Siemens' studies show that a car assembly line of robotic arms that produces 1,000 vehicles per day can consume hundreds of Gigawatts every year! This is enough energy to power a medium-sized town! One of the easiest ways to reduce the energy use of these huge robotic arms without replacing much hardware is to optimize their movements to be slower and thus yield less forces for which energy is required, yet maintain the rhythmic synergy that is required for peak performance of the factory. These optimization measures are often as simple as a change in software, and Siemens estimates that up to a fifty percent reduction in total energy consumption can be achieved.

Currently, the majority of robots are stationary and thus can always be tethered to an "infinite" power source. This false sense of permanence in power means that the developers of these robots believe that they can make energy efficiency an after-thought. But as robots begin to ditch this tether and are forced to rely on battery power, an energy efficient design will inevitably yield robots that can do more and last longer. With any luck, this sustainable influence will trickle into the designs of robots that are constantly connected to the grid, thus lightening the load for all.

## CONTACT US!

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