



HELCO brings sun power to the new Gateway Energy Center

It's hard to miss seeing HELCO's new photovoltaic (PV) systems when flying into Kona or when driving by the entrance to the Natural Energy Laboratory of Hawaii Authority (NELHA), located on the sunny shores just south of the Kona International Airport. The systems were installed by HELCO at the Gateway Energy Center in partnership with NELHA to promote solar and renewable energy technologies. The Center is a high-tech incubator that plans to focus on renewable and distributed energy, oceansciences, education, and outreach.



HELCO's new PV systems at NELHA's Hawaii Gateway Energy Center demonstrate the use of renewable technology.

The more visible PV system is mounted on striking "space frames" above Gateway's Outreach Center. The other system is located on the roof of the first of several planned laboratories designed to house R&D projects for fuel cells and other alternative energy technologies. Each system generates 20 kilowatts of power, which is fed directly to the island's electricity grid.

Two different PV technologies are used—amorphous silicon and polycrystalline. HELCO will be testing their performance over time. The systems are owned, operated, and maintained by HELCO.

As team leader for the Island of Hawaii Million Solar Roofs Partnership, HELCO is also partnering with NELHA and the State of Hawaii Department of Business, Economic Development, and Tourism to design, construct, and install an educational display for the Gateway Outreach Center. The display, funded by a U.S. Department of Energy grant, will focus on net-zero energy homes, energy efficiency, and the use of photovoltaics in the production of hydrogen.

Also in this issue:

[The shocking facts about lightning](#)

[Is your circuit overloaded?](#)

[Big Island solar roofs](#)

[Recipe of the month](#)



The shocking facts about lightning

In this season of winter storms, we hope you'll take a moment to consider these home safety tips.



Lightning can strike as far as ten miles away from the rain area in a thunderstorm. That is about the distance you can hear thunder. Therefore, if you can hear thunder, you are within striking distance! Take shelter and follow safety measures immediately.

Lightning can enter a home in one of three ways: through a direct strike; through wires or pipes that extend outside the house; and through the ground. Lightning can travel through electrical, phone, plumbing, radio, and television reception systems. Lightning can also travel through any metal wires or bars found in concrete walls or flooring.

Once inside your home, you should stay away from windows, doors, and lanais. Do not lie on concrete floors and do not lean against concrete walls.

Avoid contact with anything that conducts electricity. This means not handling electrical equipment, electrical cords, or corded telephones.

It is recommended that you unplug electrical appliances, computers, and other sensitive electronic equipment before a storm becomes severe. A high-voltage spike from a lightning strike can cause the insulation of an electric cord to fail and an appliance to short-circuit, both of which can cause a fire. High-voltage spikes can also occur when storm winds push tree limbs into power lines.

Avoid contact with plumbing, which includes not washing your hands, taking a shower, washing dishes, or doing laundry. Washers and dryers are especially dangerous because they are made of metal and are connected to electrical and plumbing systems. Additionally, the dryer vent provides an electrical path from the outside.



Is your circuit overloaded?

Do you plug a lot of electronic devices into a single power strip or combine extension cords to plug in more appliances? You could be close to overloading your electrical circuits.

Circuits in older homes may be designed to carry a maximum of 15 amps, or 1,800 watts, while most circuits in newer homes are designed to carry 20 amps, or 2,400 watts.

If you stop to think that hair dryers use 1,200 to 1,875 watts of electricity and toasters use 800 to 1,400 watts, you can see how easy it can be to overload a circuit.

To calculate if a circuit can handle additional electrical loads, determine the electrical demand of all appliances and fixtures on that circuit, in either amps or watts.* This information is provided on the nameplate.

Then add the energy use, in amps or watts, of all appliances that may be "on" or "turned on" at the same time on that circuit. The total should not exceed the circuit's breaker rating. The rating is printed, in amps, on each circuit breaker.

* These formulas may be useful:
 watts = amps x volts
 (120 or 240 volts)
 amps = watts ÷ volts
 (120 or 240 volts)



Big Island Solar Roofs

With interest rates this low, installing your HELCO-approved solar water heating system has just gotten easier!

Starting January 3, 2005, CU Hawaii Federal Credit Union and HELCO will be promoting the Big Island Solar Roofs program featuring two low-interest solar water heating loan programs.

0% Interest loans

- 5-year term, fixed monthly payments
- Limited availability on a first-come basis
- Must qualify with a HELCO-approved solar water heating system and become a CU Hawaii member
- Participants must meet low-income levels based on household size

3% Interest loans

- Residential solar loans at 3% annual percentage rate, on approved credit
- 5-year term, fixed monthly payments
- Unlimited funds—anyone can apply
- Must qualify with a HELCO-approved solar water heating system and become a CU Hawaii member

Simple loan application
 Apply online at: www.cuhawaii.com
 Apply by phone at CU Hawaii in Hilo: 933-6700 or in Kona: 930-6700 for solar water heating financing.

Call HELCO at 969-0127 for your solar water heating contractor information today!



RECIPE OF THE MONTH

Simple, "ono," and healthy chicken adobo

In a large sauce pot, combine all ingredients. Bring to a boil; lower to medium heat and simmer until liquid is almost completely evaporated. Do not stir while simmering to prevent chicken pieces from falling apart. Serve with brown rice. Recipe makes 6 servings.



- 2 pounds boneless, skinless chicken breasts, cut into 2-inch pieces
- 1 onion, chopped
- 1/2 tablespoon whole black peppercorns
- 1 cup water
- 1/2 cup saltless soy sauce (available at Japanese grocery stores)
- 1/2 cup cider vinegar
- 2 bay leaves
- 7 cloves garlic, chopped