



# [GCEA News]

## [what's inside]

- Taylor Park Dam Project
- Auditor Earns Certification
- Employee Anniversaries
- GCEA Scholarship Listing
- College Fire Safety
- Keeping Your Pets Safe from Electricity

**MAILING ADDRESS**  
 P.O. Box 180  
 Gunnison, CO 81230-0180

**STREET ADDRESS**  
 37250 West Highway 50  
 Gunnison, CO 81230

970-641-3520 [Gunnison]  
 970-349-5385 [Crested Butte]

gcea@gcea.coop [email]  
 www.gcea.coop [web]

**BOARD OF DIRECTORS**  
 Paul Hudgeons, president  
 District 5 [Lake City]

Steve Schechter  
 District 4 [Gunnison West/Powderhorn]

Greg Wiggins  
 District 1 [Crested Butte]

Chris Morgan, director  
 District 2 [Mt. Crested Butte]

Bart Laemmel, director  
 District 3 [Ohio Creek/Almont]

John Vader, director  
 District 6 [Gunnison East/Sargents]

Lou Costello, director  
 District 7 [at large]

**NEWSLETTER EDITOR**  
 Vicki Spencer



## Hydropower's Role in Electricity

BY VICKI L. SPENCER, Ph.D. || ENERGY USE AND COMMUNICATIONS SPECIALIST || GCEA@GCEA.COOP

Energy from flowing water has been harnessed for human use for more than 2,000 years, extending back to ancient civilizations that used water wheels to grind wheat into flour. In the 1800s, Americans began to use the power of flowing water to make electricity. This technological breakthrough quickly swept across the nation, and within a decade 200 U.S. plants were using water power for some or all local electric generation.



Vicki L. Spencer, Ph.D.

In the 1930s, electric cooperatives were created to supply electricity to rural areas and much of this electricity was generated from hydropower. Today, more than 600 electric cooperatives across the country purchase power from 134 federally owned and operated dams, most of which were built between the late 1930s and early 1960s. Hydropower provides about 80,000 megawatts of capacity in the United States and accounts for 86 percent of all renewable, carbon-free electricity used by electric cooperatives.

How does hydropower work? In simple terms, hydropower converts the natural energy in moving water to mechanical energy. A water wheel or its modern-day equivalent, a turbine, becomes a basic means to that end. Electricity is produced when the turbine is attached to a generator. With highly efficient turbine-generators doing the job, electricity can be produced in a number of ways, including the following:

**Impoundment:** When most people think of hydropower, dams come to mind. The flow of water can be controlled by plugging a river and amassing water in a reservoir. Then the water can be regulated to generate electricity as needed. This is the kind of generation that comes from Blue Mesa Reservoir,

just west of Gunnison. Although GCEA has an all power agreement with Tri-State Generation and Transmission, the reality is that we receive most of the electricity that we use from Blue Mesa hydropower.

**Diversions:** Water is channeled away from a river, typically near natural falls, down to generators at the base of the falls. This can be done without any visible impact to the natural course of a river. This kind of generation was used to bring electricity to Buffalo, New York, from Niagara Falls in the late 1800s.

**Pumped storage:** This method essentially uses off-peak electricity to make electricity for use during times of high consumption. Two reservoirs are filled, one typically uphill from the other, with an electric pump and generator in between. At night, when demand is low and electricity is less expensive, water from the lower reservoir gets pumped uphill. During the day, when demand for power increases, water is released down through the generator to make electricity.

*(continued on page 8)*

## Hydropower's Role in Electricity

(continued from page 7)

Last year, GCEA received matching grant funds to look into the potential for hydropower development at the Taylor Park Dam. Although the “reconnaissance-level investigation” concluded that the addition of hydropower generation capacity at Taylor Park Dam “is feasible from a technical and economic perspective,” the study left many unanswered questions.

For instance, what limitations are created by the capacity of the existing power lines? Could the recommended 1.96-megawatt generator be interconnected to GCEA's 14.4-kilowatt distribution system by using existing single-phase lines? Would this create unacceptable phase-balancing problems, greater system line losses and system protection and coordination problems? Or should we replace the single-phase lines with three-phase lines that would allow greater generation output to be exported to the system and provide for better system phase balancing, and thereby lower system line losses of generated electricity as well as improve system protection and coordination in the event of a generator outage?

Determining whether it is practical to

generate electricity from the Taylor Park Dam is much more complicated than it may seem on the surface. For this reason, GCEA has sought additional external funding. In June, we learned that we were awarded a grant from the Governor's Energy Office (GEO) that provides 120 hours of project consultation with the Renewable Energy Development Team (REDT).

The GEO developed the REDT program to support projects that do not have the financial capabilities to move forward to the next stage in the review process — engaging an investor and/or project developer — without additional technical assistance. The program is managed and supported by GEO staff with assistance from a contracted team of experts and an advisory panel of industry members. Funding comes from the American Recovery and Reinvestment Act of 2009.

GCEA is pleased to have received this award as it will help us move forward with evaluating the project potential without incurring additional costs to our members.

In June, GCEA learned that our electric association had been awarded a grant from the Governor's Energy Office (GEO).



Alantha Garrison

## GCEA's Auditor Earns Certification

Congratulations to Member Services Representative Alantha Garrison who successfully completed comprehensive training and evaluation to become certified as a Building Analyst Professional by the Building Performance Institute (BPI).

BPI certified professionals are individuals who have proven their skills and have met stringent, nationally-recognized standards by passing both written and field examinations. Ongoing continuing education units keep these specialists on top of emerging issues, technologies and best practices.

BPI certified professionals use the “house-as-a-system” approach and conduct comprehensive whole-home assessments that go beyond a traditional energy audit to establish performance levels for the home and trace the problems to their root cause. After collecting information about the home and evaluating the data, they provide solutions based on proven building science.

The information is presented in a report for the member that details what was found during the audit and what recommendations can be made. When improvements are made, energy efficiency is enhanced for the long term, while occupant comfort, health and safety are not just protected but often dramatically improved.

GCEA members interested in getting a free energy audit should call 970-641-3520 and ask for Alantha.

## [employee anniversary]

**Greg Katheiser** ..... Meter reader and  
vehicle maintenance  
16 years

congratulations!  
we value our employees

## Local Students Get a Head Start With GCEA Scholarships

Gunnison County Electric awarded 30 scholarships for 2011. The following students received awards — congratulations, students!

- Shawnda Arnett
- Daniel Cadwell
- Jena D'Aquila
- Karleigh Dean
- Rebecca Ehmesen
- Chloe Eskew
- Keanan Garnes
- Zachary Giffitt
- Carson Grogg
- Jason Grogg
- Bryce Johnston
- Corbin Johnson
- Erin Kelly
- Lily Lambert
- Stephen Mikeska
- Scott Murtaugh
- Mick Osmundson
- Ashley Peterson
- Hanna Pike
- Ryan Roper
- Jade Schichtel
- Luke Schumacher
- Jonathan Sharpe
- Karter Skelton
- Hanna Smith
- Kristie Stahlnecker
- Alison Turner
- David Vader
- Melanie Whiting
- Stefan Whiting

## COLLEGE FIRE SAFETY

**MOST STUDENTS ATTENDING SCHOOLS FAR** from their hometown or state find college to be their first opportunity for independent living. College provides new and exciting opportunities, including community living for students in dormitories, fraternity and sorority houses and other locations. But not even an impeccable safety record can safeguard someone against the actions of other residents in shared college housing facilities. Therefore, it is extremely important to develop and practice an escape route should there be a fire.

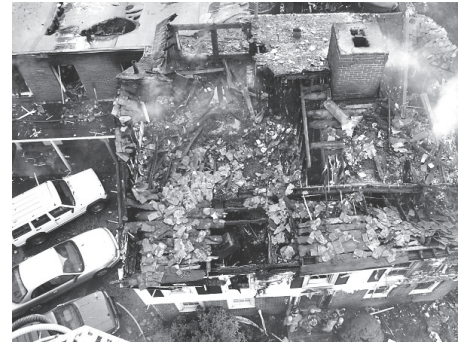
Fire is the third leading cause of accidental death in the United States. A residential fire occurs every 82 seconds in the U.S., and, once burning, the size of a fire doubles every 30 seconds. If a fire occurs in your building, evacuate as soon as possible. Do not try to act bravely or put the fire out. That is a fight too easily lost and is just not worth it.

You should have an escape plan. Follow it at the first sign or smell of a fire. Never exit a door if it feels hot to the touch, as flames are likely on the other side. It is also a good idea to know where all the fire extinguishers are located in the building.

### Stop fire before it starts

In community living facilities, all residents must do their part to make their dwelling safer. Here are a few easy steps you can take to help prevent fire through electrical hazards:

- Look for the Underwriters Laboratories, or UL, mark on all products. It means samples of the product have been tested for safety.
- Make sure outlets are not overloaded.
- Check electrical wires and cords to make sure they are not worn or frayed.
- Never run electrical wires or extension cords under carpets or heavy items, and never bunch them up behind a hot appliance.
- Unplug appliances when not in use.
- Make sure building management in-



The Delta Upsilon fraternity at the University of Massachusetts at Amherst was destroyed by a fire started by an unattended candle. In addition, smoke alarms in the building had been covered by plastic and tape so that they would not be activated during parties.

stalls at least one smoke alarm on each level, and make sure they are maintained and tested regularly.

### Fire facts

Fire is a chemical reaction involving fuel, oxygen and heat. Take away any of these three elements and a fire cannot last. There are four classifications of fires dependent on their fuels:

- Class A — Ordinary materials like wood, paper, cloth, rubber and plastics. Most home fires fall into this category.
- Class B — Combustible liquids, such as gasoline, kerosene, alcohol, paint and propane. These tend to be more severe and dangerous than Class A fires because liquid fuel is highly flammable and can propagate easily.
- Class C — Electrical equipment like appliances, switches and power tools. These fires are extremely dangerous due to added shock hazards and because the source is energized. An energized fire source supplies a steady and constant ignition condition.
- Class D — Combustible metals like magnesium, titanium, potassium and sodium. These fires burn at an extremely high temperature and can react violently with water or other chemicals.

Source: Underwriters Laboratories



One of the easiest ways to make your home more energy efficient is to add insulation in the attic. To see if you need insulation, look across an uncovered attic floor. If the insulation is level with or below the floor joists, you probably need to add more.

Source: Energy Star

# KEEPING YOUR PETS SAFE FROM ELECTRICITY

Puppies and kittens are cute and curious, but cute won't help them if they begin to chew on or play with electrical equipment: Doing that can put your pet in danger of injury or death and create a shock or fire hazard in the home. Spending a little time evaluating your home will help you avoid a pet-related accident.

- If your pet demonstrates an interest in electrical cords, check the cords frequently for signs of fraying and replace any damaged cords immediately. If you must leave your pet unsupervised, make sure any loose electrical cords are unplugged or tucked out of sight. If your pet continues to seek them out, coat the cords with bitter-tasting pet deterrent available at your local pet store. Some stores also offer pet-proof cords that serve the same purpose.
- Appliances near sinks and bathtubs should be plugged only into outlets equipped with ground fault circuit interrupter protection in case an electrical appliance is knocked into the water. If your cat enjoys playing in the sink, make sure no electrical appliances (like radios or curling irons) are left plugged in or unattended in the bathroom.
- Lamps with exposed bulbs — especially halogens — can reach high temperatures. Do not allow pets to play near lamps. If the lamp is knocked over, a fire could start.
- Some pets, especially cats, will often seek warm, secluded spots in the home. Do not allow your pet to hide or sleep behind your computer or television where numerous electrical connections are housed.
- If you have a fenced outdoor area for your dog, be mindful of any underground electrical or cable lines running through that area. Make sure the lines are buried at appropriate depths, especially if your dog likes to dig. In the event of an electrical storm, bring all pets indoors immediately.
- Take special care during the holiday season. Pets may be tempted to chew on or play with decorative light strands.

If you think your pet may have suffered an electrical shock, approach it with caution to keep from being injured by the same electrical danger and to keep from being bitten. Inspect the animal for injuries and get your pet to an animal hospital as soon as possible.



**Follow the precautions above to keep your playful pet and your home safe.**



## USE YOUR GENERATOR SAFELY

A generator can be extremely useful during a power outage, but remember to always follow the manufacturer's instructions to ensure safe and proper operation. To protect yourself and your family, or your business, remember to follow these rules.

Always:

- Have a licensed electrician install your generators.
- Plug appliances directly into an emergency or portable generator. This is the safest way to use a generator. Connecting a generator directly to a breaker panel, fuse box or meter box isn't recommended.
- Store gasoline in approved fuel containers and out of children's reach.
- Keep children away from generators.
- Have a fully charged, properly rated fire extinguisher (i.e., rated for electrical and gas fires) ready at all times.

And remember to:

- Never connect generators to your utility service through receptacles, outlets, breakers, fuses or meter boxes.
- Never replenish fuel in a generator while it is running.
- Call an electrician to repair a generator; never attempt to repair it yourself.
- Operate your generator outside. Never operate it inside a building or garage.