

Investing in Our Future



During the current economic situation in our country the organizations that are dependent on contributions for their operating funds have suffered. Apparently, many people decide that they cannot contribute to these programs, concluding that such

needs can wait for better times. There are many worthy causes; however, I am particularly concerned with what happens to youth programs. I submit that the negative influences on today's young people will not take a rest or wait on the economy to improve as they continue to induce our children. There is no better time than now to keep investing in our youth or any cause that helps members of our communities.

Your co-op takes its role as a "corporate citizen" seriously and helps where we can. To keep it reasonable, each year we budget \$1 per member for community donations. Not only is support provided monetarily, but CAEC employees and trustees help conduct Relay for Life events, coach youth sports, help raise money for United Way, as well as many other worthy organizations.

For the youth in our communities we make investments in programs like scouting, little league and school events. The Co-op also promotes leadership training by supporting counties with Youth Leadership Programs. Since the late 1960's, your co-op has participated in the annual Rural Electric Washington Youth Tour and the Alabama Cooperative Council Youth Leadership Camp. This is not unique to your electric co-op or Alabama. Each year, in June, more than 1,600

high school juniors from across the U.S. arrive in Washington to see and learn about their nation's capital, electric cooperatives and meet their Representatives and Senators in Congress.

Many have benefited from this opportunity and every year I am amazed at the quality young leaders I meet as we conduct our Youth Leadership assembly. All the students attend a rally and participate in the Montgomery Youth Tour, learning about state government and meet their state legislators. The group also has the opportunity to go to the 4H Center in Columbiana for Cooperative Council Youth Leadership Camp.

If you have read my column for any amount of time, you may be aware that I am the proud father of three; Isaac, 19, Becca, 16, and Tori, 14. My wife Amy and I have been so grateful to those who have given of themselves to make programs such as Scouts, youth sports and church activities happen for our children.

I decided to write this article as I was in the midst of helping with the annual Tukabatchee Area Council Friends of Scouting Campaign. This year seemed particularly hard to raise the contributions and although I realize that many others had to tighten their belts, I know that these programs still fill a tremendous need in the lives of our youth, even in economic down turns. Every little bit helps though, whether it is money or time. Regardless of who, what or where you help, now is the time. ☺

Tom Stackhouse, President/CEO

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Efficiency *Math*...

A Lesson in *Lowering* Your Energy Usage

As we come into the fall season, this is the perfect time to brush up on some simple efficiency measures you can take to prepare your home (and your power bill) for the upcoming winter months.

Below are tips that you can implement now to help provide energy savings for years to come.

R-Value= More Efficient Energy Dollars

Improving your home's insulation is one of the fastest and most cost-effective ways to make your residence more comfortable year-round while reducing energy waste and making the most of your energy dollars.

Insulation is measured in R-values, which indicates the resistance of heat flow. The higher the R-value, the better your attic will resist the transfer of heat, either from or into your home. The U.S. Department of Energy (DOE) classifies different regions of the country into zones. These zones dictate the suggested R-values for that area based on local heating and cooling costs and climate conditions in different areas of the nation. For example, Alabama is classified as zone 3 with a suggested R-value of at least R-30 to R-60 for an uninsulated attic in this zone.

If your attic has three to four inches of existing insulation, the DOE recommends adding insulation with an R-value of at least R-25 to R-38, or about 10-14 inches. While the thickness may vary between the types of insulation, the Federal Trade Commission requires that all insulation products, whether rolled fiberglass or blown-in cellulose, have the R-value clearly labeled on the packaging along with instructions for determining the thickness you need to apply to attain a particular R-value.

A quick way to determine if you need more attic insulation is to look across the span of your attic. If your insulation is just level with or below your floor joists, you should add more. If you cannot see the floor joists because the insulation is well

above them, then you probably have enough and adding more would not be cost-effective.

The "Energy Factor" of Hot Water Heaters

If you're in the market for a new electric hot water heater, be sure to look for the energy factor (EF). The EF indicates a water heater's overall energy efficiency based on the amount of hot water produced per unit of fuel consumed during a typical day--the higher the energy factor, the more efficient the water heater.

You can also use the EF to calculate your hot water heater's cost of electricity with the following formula (365 is the number of days in the year and 12.03 is the constant of the average daily energy use of a standard electric hot water heater):

$$365 \times 12.03 / \text{EF} \times \text{Electricity Cost by kWh} = \text{estimated annual cost of operation}$$

For example: A water heater with an EF of .90 and cost of \$0.1048/kWh:

$$365 \times 12.03 / .90 \times \$0.1048 = \$511.30$$

CFLs, Lighting the Way to Savings

Compact Fluorescent Lamps (CFLs) have become very popular in the last few years. These light bulbs last 10 times longer than a standard incandescent bulb. Not only do they last longer, but they use about one-fourth the energy while producing 90 percent less heat.

Compare the wattage of CFLs to incandescents. For example, a 60 watt incandescent bulb is equivalent to a 14 watt CFL, meaning the CFL uses 46 less watts, but provides more light and emits less heat. Find out how much you can save with our CFL calculator available at www.caec.coop.

By doing your homework on efficiency measures now, you can save energy dollars for years to come. ☺



Natural Gas: Fueling Power For You

When you think about electricity, you may not think of natural gas—but this resource plays a vital part in producing your power. Natural gas is a fuel that requires very little processing to be usable for industrial processes, is high in heating value or Btu content, and has few impurities as compared to some other fossil fuels. In the power industry, natural gas is historically used for intermediate and peaking power plants, or plants that come online during “peak”

usage times such as a cold winter morning or a hot summer afternoon when a large population is using a greater load of electricity.

From exploration and discovery to power generation, several steps occur before natural gas can be converted into electricity—from locating the resource to utilizing it to its fullest extent, you’ll understand natural gas’ role in supplying power to your home.

Exploration

Natural gas is found underground in deposits. It takes geologists and geophysicists and the use of technology to make educated guesses on where these deposits are located. This process can take from two to 10 years. Geologists typically begin with geological surveys at the top of the earth’s surface—looking for characteristics indicative of natural gas deposits.

Once probable areas are located, geologists then use equipment such as seismographs (similar to those used to record earthquake fluctuations), magnetometers (to record magnetic properties) and gravimeters (to measure gravitational fields) to explore the composition of the earth below and determine if the environment is favorable for natural gas deposits. If these tests are positive, exploratory wells are then dug allowing geologists to see firsthand the underground characteristics and confirm if deposits are present.

located, a well is constructed; if natural gas is not discovered, the site or “dry hole” is cleaned up and the process of trying to locate natural gas begins again. For example, from 1995-2005, 60 percent of wells drilled for natural gas were deemed dry holes.

If deposits are found, the next step is removing the gas and preparing it for transportation. Since natural gas is lighter than air, once a conduit to the surface is opened, the pressurized gas will rise to the surface with little or no interference. Once lifted out of the well, the gas travels through a network of pipelines to be treated and processed.



Extraction

Once it is confirmed that an area has a high probability of gas deposits, drillers begin the three week, 24-hour a day process of digging down (in some cases, more than 20,000 feet below the earth’s surface) to these areas—where it is still not 100 percent certain if natural gas deposits exist.

Drillers use two methods: Percussion drilling which is the raising and dropping of a heavy metal bit into the ground, creating a hole; or rotary drilling which uses a sharp, rotating bit (much like a handheld drill) to dig. The rotary method is, for the most part, the most common form of drilling today. If natural gas is

Processing

Natural gas used in homes is vastly different from the raw form of natural gas that comes from the ground. The gas is sent to processing plants where excess water, fluids, sulfur, carbon dioxide and hydrocarbons are extracted, resulting in pure natural gas.



Arrival to the Power Plant



The processed gas arrives at the power plant in a mainline transmission pipe. This pipe connects to the power plant's gas yard where filters further remove impurities and any excess moisture (such as water or liquid hydrocarbons) is collected and removed. Gas yards also condition the gas for equipment used in power production by adjusting the pressure to meet combustion turbine (see paragraph below) design requirements. Natural gas must stay in a "gaseous state," and not be condensed into droplets of liquid. If natural gas condenses as hydrocarbons in a more concentrated form, it could cause internal equipment damage. One method utilized to maintain the required gaseous state is gas heaters, which help ensure the natural gas remains above the dew point.

Combustion Turbines/Generator

Once at proper pressure and temperature, the gas travels to the combustion turbine, which is very similar to a jet engine. Combined with compressed air generated in the forward part of the engine, the burning of the natural gas causes the blades of the turbine to spin. The turbine is connected to a generator via a shaft. This shaft causes the generator to spin and transforms mechanical energy into electrical energy by using magnets and copper wire to create an electrical charge. This power is then transferred to the power plant's step-up transformer and switch yard before entering the transmission system (as discussed in the June issue of *Alabama Living*).



Combined Cycle Natural Gas System

After the turbine burns the natural gas, more power can be produced by utilizing a combined cycle system. This system takes the exhaust heat from the turbine (ranging from 900-1,150°F) and sends it to a Heat Recovery Steam Generator (HRSG).


The HRSG takes the exhausted hot gases and uses it to convert water into steam. This steam is then sent to a steam turbine that, like the combustion turbine, is connected to a generator to create electrical energy. The steam is sent to a condenser that cools the steam turning it back into water where it is reused in the HRSG and the water/steam process is repeated.

The McWilliams and Vann plants in Andalusia, Ala., which serve CAEC, are examples of a combined cycle natural gas system. Owned and operated by PowerSouth, CAEC's generation and transmission provider, the McWilliams plant has a 149-159 megawatt capacity.



As you can see, natural gas plays an important role — as a resource for generating power as well as providing employment through the natural gas industry to 1.8 million Americans. Approximately 83 percent of the natural gas used in the United States comes from wells in the U.S., with another

15-16 percent coming from Canada.

We must continue to keep this fossil fuel part of our power generation portfolio. Its ability to be quickly converted to energy when needed makes natural gas a vital way to fuel power to your home when you need it most. 

High School Juniors: *Apply for the Experience of a Lifetime!*

Calling all area high school juniors! CAEC is once again accepting applications for the Youth Tour/Youth Leadership program.

CAEC's Youth Tour is a once in a lifetime opportunity available for current juniors attending public, private or home schools in CAEC's service area. Here are just a few of the activities you'll experience if selected as a participant:

- **Montgomery Youth Tour:** Learn more about our state's capital, government and history during a unique experience that allows you and students from across the state to tour state buildings, the state Supreme Court, the Rosa Parks Museum and more.



- **Youth Leadership Conference:** Held at the 4-H center in Columbiana, Ala., students participate in leadership exercises and learn about the roles cooperatives, from farming to power, play in today's world.

- **Washington Youth Tour:** A few applicants will be selected to fly to our nation's capital and tour monuments, federal buildings and other exciting landmarks! This is also a great opportunity to meet other youth leaders from across the country as well as members of your Congressional delegation.

"The whole program is a once in a lifetime experience," said 2009 Youth Tour representative Owen Mims. "Through this opportunity, I was allowed to not only see Montgomery and our state in a different light, but I also visited Washington and while there, was able to speak with my local Congressman. I urge everyone to apply — it's one of the best experiences of my life!"

Applications must be received no later than Friday, Nov. 6, 2009. To learn more about Youth Tour or for an application, visit our Web site or contact us at 800-545-5735. ☞

What Could \$1,500 do for Your Classroom?

How can teachers get an extra \$250, \$500 or \$1,500 for their students? Through the Bright Ideas Grant Program, sponsored by Central Alabama Electric Cooperative. Now in its 12th consecutive year, the Bright Ideas Grant Program helps local teachers fund their classroom projects and encourages young minds to grow.

As a program that strives to support innovative, creative and effective initiatives not usually covered by traditional school funding, Bright Ideas grants assist teachers in public, private and home schools within CAEC's service area. And in hard economic times like those we face now, this program is more important than ever when it comes to helping prepare our students for tomorrow.

Teams of teachers and individual teachers are eligible to apply for the funding. Individual teachers can apply for grants from \$250 to \$750, while teams of teachers are eligible for grants

up to \$1,500. Just think what that money could mean for your students!

The deadline for an application is Nov. 6. For more information or an application, visit our Web site at www.caec.coop or call 800-545-5735 ext. 2125. ☞



2008-2009 grant recipients, Joetta Kelley and Gloria Williams, use materials purchased through the Bright Ideas Program to further their students learning in innovative ways.

Can You Make the **Grade** for Energy Efficiency?

We are all aware of the fact that there are steps we can take to lower our energy usage and to be more efficient — but how much do you really know?

Take the short quiz below to see if you make the grade when it comes to managing your energy usage.

1. How often should you change your heating and air system's air filter?
 - a. Every six months
 - b. Every month
 - c. Once a week
 - d. Once a year
2. True or False: Manufactured home skirting is solely for looks and does nothing for your power bill.
3. What temperature setting should your electric hot water heater thermostat be on for the best efficiency?
 - a. 160° F
 - b. 140° F
 - c. 120° F
 - d. 100° F
4. True or False: Plasma TVs use twice the electricity of an LCD or projection TV.
5. CFLs (compact fluorescent lamps) use how much less electricity than standard incandescent bulbs?
 - a. 75 percent
 - b. 50 percent
 - c. 45 percent
 - d. 25 percent



Answers:

1. B. Make it a habit to clean your heating and air unit's air filters each month. This helps your unit run more efficiently by allowing an unobstructed flow of air.
2. FALSE: While it may add to the appearance, manufactured home skirting helps keep air underneath a manufactured home at a constant temperature by reducing moisture from the outside air and it also helps to protect the ductwork often found underneath the home.
3. C. Water heating can account for 14–25 percent of the energy consumed in your home. By setting your electric water heater's thermostat to 120° F, you can save 3-5 percent in its heating costs.
4. TRUE: While they have a great picture, plasma screen TVs use a lot of power. And as always, whenever you're looking to purchase a new appliance, such as a television, look for the Energy STAR logo.
5. A: Not only do they use 75 percent less power, they also last up to 10 times longer than traditional incandescent bulbs.



Safety from CAEC: Powerful Advice




Safety. Dig it.

Utility lines are often buried as shallow as 18 inches below ground. So, before you dig for any reason, stop and call to find out the location of buried lines. After all, safety is our number one concern.

811
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