East Texas Electric Cooperative is well on the way to bringing a green, renewable energy generation source right to our own backyard in East Texas. The power plant will use renewable biomass as its fuel. When completed, the plant will have the capability of producing about 50 megawatts of power. That's enough electricity to power nearly 50,000 homes.

The plant will be located on property between CR 1020 and CR 1030, just west of their intersection near Woodville. The property is part of an existing wood chipping mill facility, which will provide the wood chips to fuel the power plant.

ETEC’s plant site was chosen specifically because of the high importance of fuel to a project of this nature. The site is also located adjacent to an electric transmission line, which makes putting the generated electricity onto the power grid nearly effortless. The unique capabilities make this location ideal for a biomass plant.

This plant is not the first of its kind. Wood-fueled boilers have been around for years. The Tyler County facility, however, will be ETEC’s first wood-fueled plant.

Technology housed in the biomass plant allows excess wood materials to be converted into renewable, carbon-neutral power for ETEC member cooperatives. The wood chips used to fuel the plant will come from unmerchantable timber, or in-woods timber waste, that would otherwise be left to rot. No construction wood waste or the like will be allowed as fuel. Research shows burning wood chips as biomass fuel emits less greenhouse gases than the natural decomposition process. That makes this project a clean, green source of renewable power.

The latest technology will be used to burn wood chips under very controlled conditions to get the cleanest, most efficient burn. Emissions will be filtered through state-of-the-art flue controls, including a “bag house” that will be designed to remove 99.5 percent of all particulate matter.

Up to 250 construction jobs will be needed to construct the plant and approximately 25 full time jobs will be created once the project is complete. These full time jobs, all local at the plant site, will exist for the life of the plant, which is projected to be about 30 years. An estimated 80 truckloads of local wood chips will be unloaded at the biomass plant every day, providing additional economic benefits via jobs related to trucks, drivers and fuel providers.

The plant will produce about one truckload of ash per day, which will be contained in a mostly enclosed system. The ash from the plant will have the same characteristics as ash produced in fireplaces and wood stoves. The ash will be collected in an enclosed system, then removed from the site via truck and either sold into the cement market or used as fill.

Technology incorporated into the plant will allow the burning of wood chips to be controlled, clean and efficient. The permit approval process includes air dispersion analysis, and requirements by the State of Texas, including continuous monitoring, tracking and reporting of emissions, which will be part of daily plant operations.

Construction of the plant is expected to begin once permits are received, which can take about a year. The plant is expected to be complete by the end of 2013 or early 2014, providing a clean source of renewable energy for East Texas.


East Texas Electric Cooperative’s mission is to provide low-cost, reliable power to its members.
THANKS FOR THE HIGH MARKS

Sam Houston Electric Cooperative delivers a level of customer service that is second to none. For the third year in a row, Sam Houston EC member satisfaction scores reflected a significant increase, reaching a four-year high of 91.3 percent in the fourth quarter of 2009.

Member satisfaction scores are based on survey results conducted by Preston-Osborne Research. We’re a member-owned, not-for-profit cooperative, and feedback provided by members like you, helps Sam Houston EC improve our way of doing business while keeping your costs as low as possible.

WATCH YOUR MARCH BILL FOR A CHANCE TO WIN A $100 BILL CREDIT

Last month, Sam Houston Electric Cooperative members enjoyed a pleasant surprise when they opened their February bill statements. In 2009, costs for generating power were less than anticipated. Every current member who was billed for electricity this past year saw their share of nearly $5 million in energy credits.

This month, Sam Houston EC wants to give you a chance to once again enjoy savings on your energy bill. A simple survey [sample shown at right] will be enclosed in your March bill statement from the Cooperative. Complete the survey and return it to Sam Houston EC for your chance to win a $100 bill credit.

Surveys offer members an opportunity to provide feedback on Sam Houston EC’s performance, and the results in turn help the Co-op provide better service to its members.

When you find your survey, please take a few minutes and let us know what you think. We’re listening.

CONSERVATION Corner

Remember this tip the next time you’re shopping for new appliances. You may find your decision easier than you thought.

Choosing an ENERGY STAR-qualified clothes washer over a standard model can significantly lower your utility bills. They can save energy and water without sacrificing performance.

For even more tips to help improve the energy efficiency of your home and reduce your energy use, visit Sam Houston Electric Cooperative’s www.dowattsright.net.

CO-OP CONNECTIONS SAVINGS

Remember to take your Co-op Connections’ Card with you wherever you go. Pull out your Card anywhere you see a Co-op Connections sticker. And say hello to the savings.

Next time you’re shopping in Livingston, visit the Chic Boutique and get 10 percent off any purchase of $10 or more. Give R.E. Appraisals a call and receive $50 off the cost of your appraisal. When you subscribe to East Texas Living, you’ll receive a 10 percent discount when you show your Card.

You can use your Card at participating businesses, including pharmacies, both local and nationwide, and earn valuable discounts on everyday purchase items and services. To find more participating business offers, visit www.connections.coop/samhoustonec.
EVER WONDER HOW PRODUCTS GET AN ENERGY STAR RATING?

Lots of folks are cutting down energy use, improving a home's insulation, turning lights off, or exchanging traditional light bulbs for more efficient lighting options. So when consumers shop for new appliances it's common to focus on finding a product with an ENERGY STAR rating.

But how do appliances get this rating? And why don’t all appliances have them? The answer may surprise you.

Computers and monitors were the first products to receive an efficiency rating from ENERGY STAR, a program launched in 1992 by the U.S. Environmental Protection Agency and U.S. Department of Energy. Since then, more than 60 product categories have been added.

According to the program, ENERGY STAR-rated products deliver the same or better performance as comparable models while using less energy and saving money.

“We’re recognizing the top performers when it comes to energy efficiency,” explains Katharine Kaplan, ENERGY STAR program manager. “We agree on a fair way to test products. Manufacturers test products using that procedure, submit the data to us, and we say, ‘These are the top performers. This is how much energy you can use to be considered a leader by ENERGY STAR.’ Generally, that means you’re in the top 25 percent.”

But not all products are rated by ENERGY STAR. The program gauges the average energy efficiency of different appliance technologies and evaluates whether there’s potential for increased efficiency.

According to ENERGY STAR, the most efficient electric resistance water heaters on the market have an Energy Factor of 0.95, about 5 percent more efficient than the minimum federal standard. Since there’s little room for improvement, ENERGY STAR does not have a category for the product.

ENERGY STAR remains a driving force not just in the United States, but in other countries as well. Federal energy efficiency tax credits for appliances and home heating and air systems typically require qualifying products to be ENERGY STAR-rated.

To learn more about the ENERGY STAR program, visit www.energystar.gov.

CO-OPS HELP HAITI

Co-ops throughout the U.S. offered help following a massive earthquake January 12 that killed thousands and left millions homeless in Haiti. NRECA’s International Foundation, which has worked in Haiti since 1998 to help bring power to the inland regions, led efforts to collect donations and inspire local relief efforts.

Sam Houston Electric Cooperative worked with The United Methodist Committee on Relief to issue “health kits,” which provide basic necessities to those rendered homeless after the devastating quake.

Damage to the capital city of Port-au-Prince was extensive and the U.S. Geological Survey says the magnitude 7.0 earthquake was the most violent to hit Haiti in more than 200 years.

[Above] Members of NRECA International inspect a downed power line in Port au-Prince. [Source: NRECA International]
East Texas iron ore

By Stephan Myers

Quick! What do the abandoned East Texas town of New Birmingham, an exploding, supermassive star and a metal paper clip have in common? If you drew a blank, don’t feel bad, few folks would know the answer. But, if you guessed East Texas iron ore, you’re right! For the curious story of this ruddy, red rock is more amazing than you might imagine.

Iron ore—the region’s signature stone—layers a wide swath of the central part of East Texas. This attractive, rust-colored mineral, breaching the soil’s sandy surface in pockets here and there, has long played a role in construction and other endeavors demanding materials of superior resilience, longevity and beauty.

But most of these uses would have never been possible if man (perhaps as early as 1200 to 700 B.C., depending on the region of the world) hadn’t stumbled upon a gift from the sky; meteorites. These gunmetal gray-colored rocks often contain large amounts of iron. People finding these heavenly visitors (the only source of pure iron at the time) became intrigued by their unusual hardness and began to experiment with ways to alter them by hand.

In time, man learned to smelt iron ore and separate metallic iron from the ore’s impurities. Because of its superior strength and durability, iron began to replace the softer, less durable bronze, forged by early agrarian societies to make tools and weaponry. During the 1800s, the production of steel, a strong alloy of iron and small amounts of carbon, eventually led to the industrial age and its powerful machines.

Seeing there was money to be made from mining the valuable iron ore deposits, folks in search of wealth soon ventured to East Texas. During the early 1880s, a sewing machine salesman from Alabama, named Alexander B. Blevins, learned about the iron ore mining operations in Cherokee County (using the labor of Rusk State Penitentiary prisoners).

Blevins, along with several capitalists, leased 20,000 acres in the county and soon began excavating the metal ore. Two iron furnaces; the 50-ton, high-temperature “Tessie Belle” (named for Blevins’ wife) and another called “The Star and Crescent” became the fiery foundries of this new industry.

Around the foundry soon sprang the fledgling community of New Birmingham, which quickly earned the nickname “Iron Queen of the Southwest.” At its peak, New Birmingham boasted a population of
[Photo] The iron in this ore was originally formed in the core of super-massive stars and blasted into space when they exploded as supernovas.
3,000 people, who found jobs there in a variety of related industries, including an iron pipe factory, plow and wagon works, and an electric generation plant. The town even featured a palatial southern-style hotel, vaunting guests like railroad industrialist Jay Gould and President Grover Cleveland.

As is often the case with new ventures, Blevins needed a steady, long-term stream of capital to make the foundry profitable. But too soon, the United States suffered a depression-like financial crisis (caused by excessive speculation) called the Economic Panic of 1893. Starved of funds, the foundry and its related iron businesses suffered extreme financial hardship.

The final blow came soon after when a fire destroyed the Tessie Belle furnace and forced the company to lay off 300 workers. As businesses failed and jobs disappeared, most of the population moved away, forcing even the town's post office to close in 1906.

You'll find the original sites of New Birmingham, and the foundry around which it was built, along Highway 69 near FM 343, about one mile southeast of Rusk, Texas. Though little remains of the town today, except a historical marker along the roadside, much of the region's rich iron ore deposits still enliven the landscape.

Today, only small quantities of iron ore (also called limonite) are mined in East Texas—not so with iron's precursor mineral, a substance known as glauconite or “green rock.” This crumbly, grayish-green material is often used as inexpensive gravel to stabilize the surfaces of unpaved driveways and county or private roads. Glauconite, which contains 15 to 20 percent iron, dramatically changes color upon exposure to oxygen in the air, a chemical reaction that causes its iron content to oxidize (rust) over time to form the beautiful, red-orange rock we know as iron ore.

Glauconite deposits are sedimentary rocks, originally deposited onto a shallow marine shelf formed during the middle Eocene Epoch, following the age of the dinosaurs. These iron ore and glauconitic rocks, found almost exclusively in the Weches Formation of East Texas (a geological feature extending into western Louisiana), have many uses in modern life. When crushed and packaged, glauconite is sold as an iron additive for poor soils to treat chlorosis, an iron deficiency in plants. It is also a product added to boost the iron content of vitamin supplements.

Probably less than a stone's throw away from where you relax and read at this moment, you'll find dozens of products that include iron at your disposal; electronics, refrigerators, sheet metal for cars, fasteners, trains, buildings, fences, garden tools, magnets and more. Ironically, iron is seldom used in its pure form due to its inherent softness. Only when
combined with small amounts of carbon can iron become steel. Add a little nickel to steel, and you get stainless steel.

More exotic alloys (metallic blends) make iron extremely durable, corrosion resistant or give it other desired properties, such as greater strength. Since iron and its chief alloy, steel, are among the world’s most recycled metals, products forged from East Texas iron ore in decades past are likely found in products we use today.

The story of iron ore, however, can’t be fully appreciated without knowing its incredible natural history. Stripped of its “ore” impurities, the dense metal forms most of the Earth’s hot, inner core. The magnetic field produced by this spinning sphere of molten iron gives direction to compasses, allows birds to navigate across the globe and generates an invisible shield around our planet protecting us from the sun’s dangerous radiation. But to understand iron’s true origins, we must venture back to those distant eons of time before the Earth was created.

Astronomers believe our universe was born some 13.7 billion years ago, following an unimaginably violent explosion. As tiny atoms of hydrogen began to cool and condense, this action allowed the force of gravity to draw them together, squeezing them so tightly the pressure and heat literally fused the atoms together forming helium. This fusion process led to the birth of the first radiant stars in the cosmos.

At their cores, stars experience temperatures of tens of millions of degrees and gravitational pressures so great the simple elements of hydrogen and helium fuse into heavier, denser elements, including the carbon necessary for life, the oxygen we breathe and the nitrogen needed for plant growth.

Average stars like our sun possess only enough gravity to fuse hydrogen and helium into the somewhat larger elements carbon and oxygen. Stars at least 10 times the mass of our sun possess such intense gravity and temperatures they fuse medium-weight elements, like aluminum, calcium and oxygen, into heavier elements such as iron.

When they die, these monstrous stars don’t go out with a whimper. Instead, they catastrophically explode, blasting their bloated surfaces into space at about one-fourth the speed of light. These ejected materials include large amounts of iron and other heavy elements. Over billions of years, these elements seed nearby solar systems, becoming integrated into neighboring planets, moons and asteroids. It was this type of explosion scientists believe to be responsible for the presence of iron and other heavy elements in the Earth as well as in other planets of our solar system.

Handling a ruddy, red piece of East Texas iron ore, or its “green rock” relative, glauconite, you can’t help but wonder at this element’s multi-billion year, star-studded history. Fused in the foundry of the stars, hurled into space and aggregated into rocky planets like Earth, atoms of this amazing element also pulse within our veins as a crucial part of the oxygen-transporting hemoglobin molecule, enabling us to ponder on a paper clip, a salad fork or a piece of East Texas iron ore in a brand new way.

STAR-STUDDED HISTORY

[Above] East Texas iron ore (known as limonite) was originally formed as layered marine deposits during the Eocene Epoch, after the age of the dinosaurs. It contains 15 percent or more iron, and when combined with oxygen, forms the rust-like appearance characteristic of this mineral.
Save energy and money by opening and closing your refrigerator’s door quickly. In just 15 seconds, 15 percent of your refrigerator’s air can escape. The refrigerator accounts for 8 percent of a household’s total energy use.

One small change can make a big difference.