

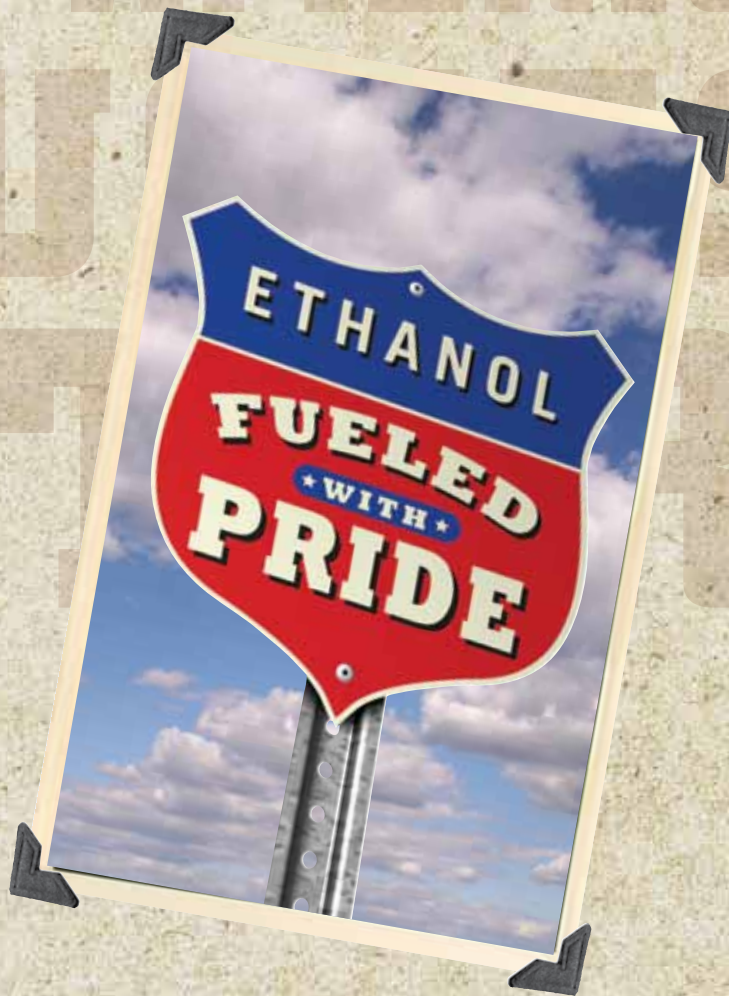
# AN AMERICAN SUCCESS STORY

*How the*  
**ETHANOL INDUSTRY  
DRIVES INNOVATION  
AND CREATES JOBS  
COAST-TO-COAST**





# AN AMERICAN SUCCESS STORY



## WE WANT TO TELL YOUR STORY

For all the inspiring examples in this book, there are many more stories to tell - and we need your help to find and share them. If you're **an employee or a small business person** with an ethanol story to tell, please tell us. If you're familiar with **a restaurant, coffee shop or equipment shop that does a lot of business with a nearby ethanol plant**, tell us about it. If you know **a veteran** who has returned from Iraq or Afghanistan and is developing a domestic alternative to foreign oil, tell us. Write us at **SuccessStories@EthanolRFA.org**. Or submit your stories and pictures at **ChooseEthanol.com**. We may feature your **story and photos** in our next edition, on this website, or in a **video**.



February 2011

As I travel this country, coast to coast, I have the good fortune to meet with the men and women who are making ethanol an American success story. They're plant managers, production workers, farmers, scientists, engineers and accountants. They're smart, hardworking people who are active in their communities. You'll meet them on a soccer field on a Saturday morning, sit next to them at a PTA bake sale, or brainstorm with them at a local business breakfast.

Together, they're building an industry that is spurring innovation and generating jobs all across this country, especially in communities in rural America that are in need of revitalization. Last year, the production and use of an estimated **13 billion gallons of ethanol helped more than 400,000 Americans to find or keep their jobs**, according to an analysis by the respected economist John Urbanchuk. With over **200 biorefineries in 29 states**, more than **70,000 of these jobs were directly involved in producing ethanol or providing goods and services to ethanol producers**. Meanwhile, American ethanol supports hundreds of thousands more jobs, from the companies that service the suppliers to businesses of all kinds on the Main Streets where the industry's employees spend their paychecks.

Thanks to the ethanol industry, there are new opportunities for young people from rural America to earn their livings and build their lives close to their families and friends. The ethanol industry offers high-skill, high-wage jobs with promising futures. As *Ethanol Producer Magazine* found in a survey of ethanol industry employees last year, **73 percent have either a two-year or four-year college degree, 83 percent earn average annual salaries of at least \$40,000, and 99 percent receive health care and retirement plans at work** - well above the national average of 71 percent with these benefits provided by their employers.

But American ethanol is more than statistics - it's people and places. This book introduces many of the men and women who are working to make America more secure, more economically stable, and environmentally sustainable...making an America that is stronger and more self-sufficient. In these pages, you'll encounter their innovation and ingenuity and be encouraged by the stories of their success, born of big ideas and elbow grease.

At the Renewable Fuels Association, we're dedicated to spreading the word about the achievements of American ethanol. As this scrapbook shows, the industry is expanding well beyond the Corn Belt and making use of new technologies and new feedstocks.

**Ethanol is an American success story.** Together, we will write the next chapters.

Sincerely,



Bob Dinneen

President and CEO

Celebrating 30 Years as the Voice of the American Ethanol Industry



## ETHANOL KEEPS A 300-YEAR FAMILY TRADITION ALIVE

**Ray Defenbaugh** brings to the ethanol industry a unique history and compelling story. By day, Ray is the president, CEO and chairman of the **Board of Big River Resources**, which owns and operates three ethanol plants and five grain elevators **employing over 200 people**. He is the president of a co-op that includes farmers in both Iowa and Illinois that not only produces ethanol, but also extracts corn oil and dried distillers grains (DDGs). "We're diverse," he says.

What makes Ray unusual and what drives his passion to farm is the fact that his **family has farmed in America on a continuing basis since 1710**. "That's 301 years," says Ray. "My family fought in 13 wars here in America, three before there was a country and 10 after. We have always been farmers first. I have two boys who farm. And I told them there would be no pressure on them to farm, but said if they do not they would be the first 'Ring Tailed' Defenbaughs in America in over 300 years not to farm!" Smiling, Ray adds, "That's not putting pressure on them, is it?"

Ray knows intensely the difficulty of farming and the need to always find a way to add value. "It used to be that we added value by raising livestock - poultry, dairy, etc. Grow the grain and feed it to livestock and walk that value off. With changes in the industry both in terms of modern technology and confinement systems, it is now more difficult for farmers to raise livestock in certain areas." Ray explains that ethanol is a value-added project, and that instead of converting grain to milk, pork and beef, "we're converting part of it to alcohol and feeding the balance. **Before, we walked the added value off the farm, now we drive it off. The process is still the same; it's just changed its form. Basically, we're still doing what we did 300 years ago.** Ethanol is giving my sons and daughters and future generations an opportunity to continue our family tradition of farming."



RAY DEFENBAUGH

200  
JOBS  
CREATED





## **COSKATA BIOFUEL LOAN GUARANTEE TO GENERATE JOBS IN ALABAMA**

The New York Times headline read, "Industry Built from Scratch." The paper reported that Illinois-based **Coskata, Inc.**, can produce large quantities of ethanol with an innovative technology that "uses a plasma torch, which shoots 8,000-degree jets of air at twice the speed of sound, to blast wood chips into hydrogen and carbon monoxide. Those gases are pumped into a tank of bacteria that feed on them and excrete ethanol. The company's pilot plant in Madison, Pa., produces about 100 gallons of ethanol." That was back in 2009.

In January 2010, Coskata was awarded a \$250 million loan guarantee, the largest so far for a biofuels plant, to help fund the construction of a **55 million-gallon-a-year production facility in Greene County, Alabama**. According to the Alabama Development Office, the Coskata facility will create about **300 construction jobs and 700 direct and indirect jobs** at the plant and in harvesting and hauling pulpwood and biomass needed to make ethanol. Following the announcement, Alabama **Governor Robert Bentley** commented that this new project would help this economically depressed area of the state by creating "hundreds of good-quality jobs and economic development in an area where they are sorely needed."

**Wes Bolsen**, chief marketing officer and vice president of government affairs for Coskata, said his company's process "can take in anything from wood chips or leftover agricultural waste or trash, and convert that directly into a fuel which will compete head-to-head with gas."

"hundreds of good-quality jobs and economic development in an area where they are sorely needed"



**1,000  
JOBS  
CREATED**



## PRODUCING DRY ICE FOR HAMBURGERS – AND HOSPITALS

Located in **western Kentucky** corn country, **Commonwealth Agri-Energy** boosts the local economy by converting its exhaust into a versatile co-product: **dry ice**.

Ninety to 97 percent of the ethanol plant's waste stream is carbon dioxide. Commonwealth Agri-Energy captures and sells the raw gas to Pain Enterprises, also located in Hopkinsville, the county seat of Christian County, Ky.

Pain purifies the carbon dioxide so it is 99.39 percent clean and then compresses and cools it into a liquid. Then, it is put into tanks for companies such as Coca-Cola and Pepsi or sold as dry ice.

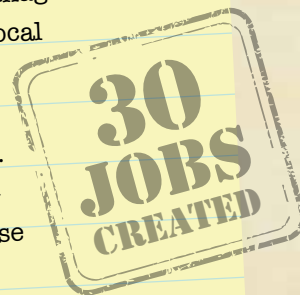
Since the late 1980s, food processors have thrown chicken, pork, beef or lamb on dry ice, controlling the temperature and cooling the meat in one day, instead of three to five as in the past. Because of dry ice, food processors can live up to sausage marketer Bob Evans' famous slogan, "On the farm today and on the table tomorrow." The meat is much fresher because the faster processing keeps the flavor in and the germs out.

Meanwhile, there's another market for dry ice: **It's used in open-heart surgery**, where it helps to freeze the veins to reduce bleeding.

By producing biofuels, livestock feed and dry ice and providing a market for corn, Commonwealth Agri-Energy and its **30 employees** anchor what general manager **Mick Henderson** calls the area's "agriculture-based economy, with much local and regional support."

Now the plant is working to further reduce its energy usage. By launching a water-cooling project to **cut its electrical consumption by 5 percent**. The plant is also part of the Tennessee Valley Authority's 'smart grid' project, adjusting its power demands during the winter and summer in response to patterns of usage throughout the system.

A rural Kentucky plant doesn't just make ethanol... it helps save lives and enhance food by capturing CO<sub>2</sub>.

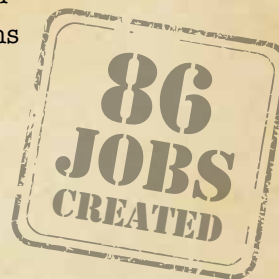


## IT'S NOT JUST ETHANOL THAT MAKES ETHANOL STRONG

Unlike many in the ethanol industry who were either grain farmers or engineers or businessmen, **Walt Wendland** started in animal husbandry with a degree in animal science. He was raised on a dairy farm, started farming in 1974, and has been involved in beef production, managed an 800-cow dairy farm, and still owns a 2,500 head hog-finisher facility. But since 2002, the ethanol industry has been his calling.

Today, Walt is the president and CEO of **Golden Grain Energy in Mason City, Iowa** and **Homeland Energy Solutions in Lawler, Iowa**. "I got into ethanol production because of the value dried distiller grains (DDGs) could bring to livestock in our area," says Walt. **Dried distillers grain, a co-product of ethanol production, is a high-protein livestock feed.** One-third of every bushel of corn used in the production of ethanol is returned to the market in the form of livestock feed. Walt's dairy farm used to spend \$50,000 a year hauling DDGs and gluten feed from Cedar Rapids to his farm. By building an "ethanol plant in our backyard, we were able to save \$50,000 a year in freight costs, and use that money to invest in ethanol production and see it grow," he says.

Owned by more than 2,100 members, the majority of whom are north-east Iowa farmers, Golden Grain Energy and Homeland Energy Solutions are committed to being strong partners in the local communities, key players in the regional economy and leaders in Iowa's ethanol industry. **The two plants have created and sustained 86 quality jobs in rural Iowa. Primarily owned by local investors, the companies don't send their revenues or profits out of the local area or country.** With both plants producing well over 100 million gallons of ethanol a year, Walt points out that **"in pretty tough economic times, this is exactly what Iowa needs to keep the economy growing."**



L to R: Dale Kleiss, Doug and Lisa Kleiss, Hadwen and Louann Kleiss, Walt Wendland and Judy Kleiss

"In pretty tough economic times, this is exactly what Iowa needs to keep the economy growing."



## BIOFUELS BOOST NORTH CAROLINA'S ECONOMY

North Carolina joined the ethanol boom in 2010 when **Clean Burn Fuels** began grinding corn as the state's first biofuels facility near **Raeford, a small community in Hoke County, the heart of the state's hog and poultry belt.** The plant is the largest on the East Coast, with production capacity of 60 million gallons a year and **50 employees.**

"There was a lot of skepticism when the plant was first proposed, but now the community is supportive and understands the benefits," said the facility's general manager, Doug Archer. **"When the company held a job fair, 900 people showed up for the first 40 jobs."**

"North Carolina is the second biggest hog producer in the country," Doug added. **"Clean Burn Fuels ships dry distillers grains to the local hog and poultry industry by truck. We are a just-in-time supplier. Customers don't have to wait two weeks for the railcar to show up."**

Doug said that they have a "destination model" facility whose production of ethanol and feed goes **directly into the local economy, with 90 percent sold within a 120-mile radius.**

A North Carolina company, Clean Burn is working in partnership with two other local companies. Perdue Agribusiness, with 90 years of experience in moving and supplying grain, is helping to market dry distillers grains to hog and poultry producers as well as providing logistical support in procuring grain. Waccamaw Transport is handling logistics and hauling.

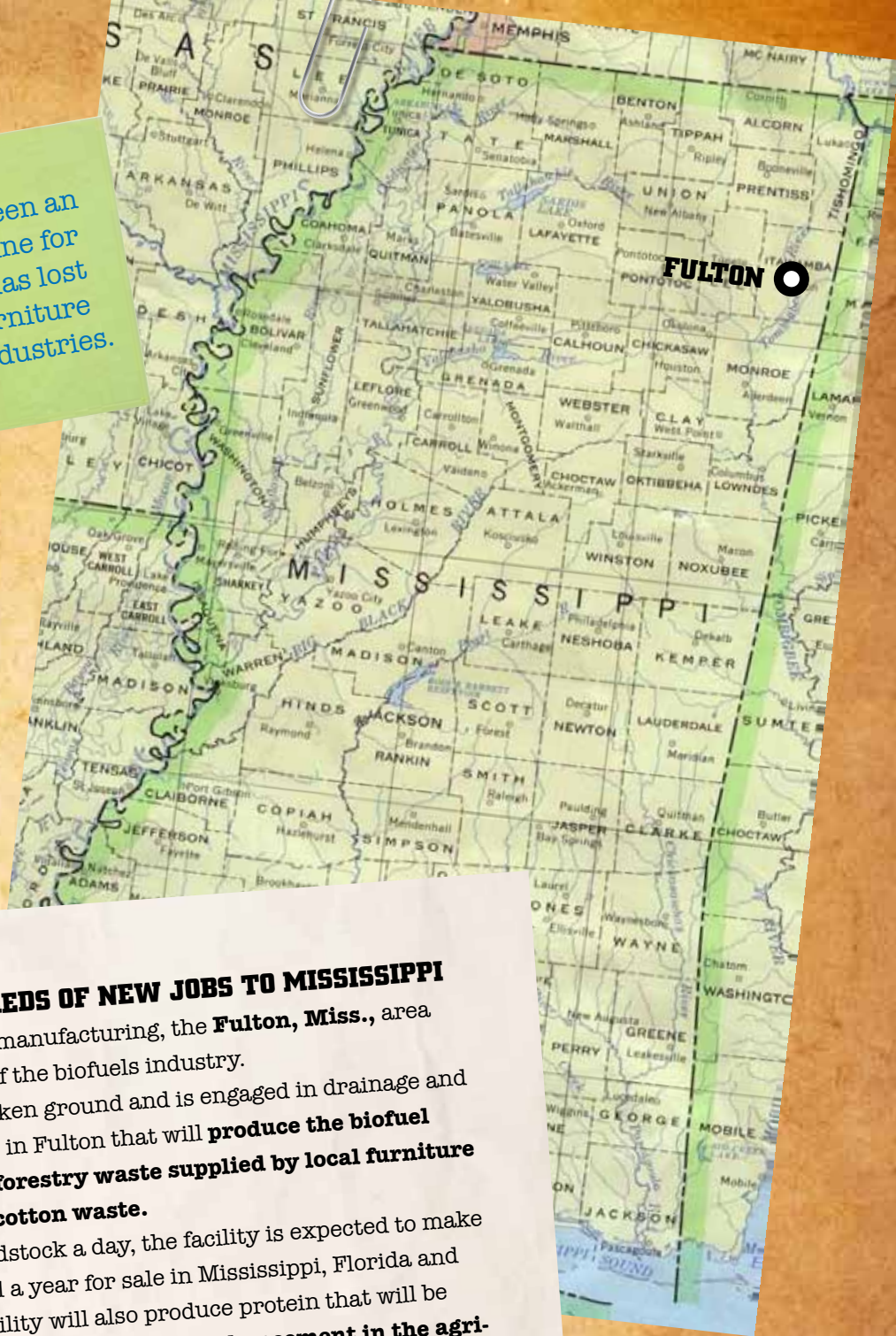


NORTH CAROLINA'S HOG INDUSTRY IS A GREAT MARKET FOR DDGS.

"900 people showed up for the first 40 jobs."



BlueFire has been an economic lifeline for an area that has lost jobs in the furniture and lumber industries.



## ETHANOL BRINGS HUNDREDS OF NEW JOBS TO MISSISSIPPI

Long a center of furniture manufacturing, the **Fulton, Miss.,** area will soon be in the forefront of the biofuels industry.

**BlueFire Ethanol** has broken ground and is engaged in drainage and site preparation for a facility in Fulton that will **produce the biofuel from feedstocks including forestry waste supplied by local furniture manufacturers, as well as cotton waste.**

Using 780 dry tons of feedstock a day, the facility is expected to make 19 million gallons of ethanol a year for sale in Mississippi, Florida and surrounding states. The facility will also produce protein that will be used in animal feed and **gypsum sold for soil enhancement in the agriculture market.**

The project will have **700 workers during the construction phase** and **70 permanent positions** once it goes into operation. In addition, it will create **50 jobs in the forestry area**, offering an economic lifeline for an area that has lost jobs in the furniture and lumber industries.

BlueFire is headquartered in **Irvine, California.**

**820  
JOBS  
CREATED**



## A 'SPIRITED' SMALL-TOWN MINNESOTA COMPANY

The next time you clean your hands during the flu season or pour yourself a drink at a party, you just might be using a product from a trail-blazing Minnesota ethanol company.

The **Chippewa Valley Ethanol Company (CVEC)** began a decade-and-a-half ago as a dream shared by two leading citizens of a small town in southwestern Minnesota. John Carnuth, a farmer in Benson, and Ray Millett, the manager of the local electric cooperative, asked themselves how they could make the most of the area's corn production while stabilizing electric rates.

Their solution: creating the cooperative that grew into CVEC from initial investments by more than 650 shareholders, including corn producers and other local businesspeople. The result: **51 great-paying jobs** that support the community.

With construction beginning in 1995 and completed in 1996, CVEC now produces about 46 million gallons of ethanol a year. Most of its 975 cooperative owners still **hail from within 50 miles of the plant.**

But the business has been progressing in new – and “spirited” – directions. A subgroup, **Glacial Grain Spirits, produces alcohol for hand sanitizers, household cleaners, antibiotics, vitamins and vaccines,** as well as beverage alcohols, with brand names such as **Shakers Vodka.** One of the company's rye and wheat spirits, **Prairie Organic Vodka,** is certified as kosher.

CVEC is also constantly improving the energy efficiency of its Benson plant. Working with an Iowa technology company, Frontline BioEnergy, CVEC is preparing to use biomass gasification technology to provide thermal energy. Eventually, CVEC will replace more than 90 percent of its natural gas energy inputs with power from corncobs and other agriculture residues, grasses and woods.

Let's drink to that.

**51  
JOBS  
CREATED**

The next time you clean your hands during flu season you just might be using a product from a Minnesota ethanol company.





Energy requirements for ethanol production have decreased 28% since 2001. Electricity use has dropped 32%, and water use is down to 2.72 gallons per gallon of ethanol produced.\*



### **IOWA PLANTS FIND 'THE ANSWER IS BLOWING IN THE WIND'**

In addition to producing clean-burning biofuels, the U.S. industry is finding new ways to use energy in more efficient and environmentally responsible ways.

When it comes to meeting this challenge, as a bard from the biofuel-producing state of Minnesota would say (or sing), "The answer is blowing in the wind."

**Iowa Lakes Electric Cooperative now is powering its ethanol plants directly with wind power generation.**

The co-op's wind farm project includes two, seven-turbine wind farms that are strategically located to provide power to the adjoining ethanol plants. One site is next to the **Green Plains Renewable Energy** ethanol plant near **Superior, Iowa**. The other site is adjacent to the GPRE facility near **Lakota, Iowa**.

With a total capacity of approximately 21 megawatts, each wind site provides for its plant's energy needs.



## LAI-D-OFF CONSTRUCTION WORKER BUILDS NEW CAREER IN BIOFUELS

**“Where can I get a new job with a future?”**

That’s the question millions of Americans are asking themselves after losing their livelihoods because of the recession and the decline of many industries.

For **Minnesotan Mike Bauman**, the answer was summed up in one word: ethanol.

Back in 2002, he was laid off his job in the mobile home construction industry. “At that time, my wife was an accounting instructor at Minnesota West Community and Technical College,” Mike recalled recently. “She brought home a list of programs offered by the school, and I thought that the program then entitled Process Plant Technology [now called Biofuels Technology] sounded really interesting.” Besides, he added, **“There was talk of building an ethanol plant in Granite Falls,” a nearby community in the southwestern corner of the state.**

Enrolling in the college’s biofuels program, Mike earned an AAS (Associate in Applied Science) degree. Starting up its operations, **Granite Falls Energy** was so impressed with his skills and training that it hired him as a **plant operator** even before it began producing ethanol in 2005.

Over the years, Mike has been promoted to **shift supervisor**, heading up the processing operation that turns milled and cooked corn into a usable biofuel. Granite Falls Energy has continued to grow, producing almost 50 million gallons of ethanol a year and announcing plans to expand its capacity. Grateful for the training he received, he has helped Minnesota West develop a computer-based ethanol plant simulation program for its Biofuels Technology students.

Looking back, **Mike Bauman is glad that he got in on the ground floor of the fast-growing biofuels industry.** “Ever since I made that decision, nothing but good things have happened to me,” he said.



Mike Bauman

“Ever since I made that decision, nothing but good things have happened to me.”





"My new career goal is to become the CEO within the next two years."

## ETHANOL IS A LADDER OF OPPORTUNITY

**Jeff Knutson** has a dream. One day, he wants to be the CEO of an ethanol company. About 10 years ago Jeff set out on his quest. He enrolled at Minnesota West Community and Technical College in the summer of 2001 for a degree in Biofuels Technology.

After graduation, Jeff landed a job as a **process operator** at an ethanol plant in Lakota, Iowa. From there, he went on to become the **lead shift supervisor** at VeraSun's plant in Brookings, SD. By 2006, Jeff, who had established a goal of becoming a **plant supervisor** after five years of work, had not reached that position. He and his wife decided they would do "whatever it took" to reach that goal. He replied to a job posting for a production supervisor at Central Indiana Ethanol (CIE) in Marion, Ind., and got the job in November of 2006.

**"Within 6 months, I was promoted to the production manager," says Jeff. "I loved everything about what I did. This was truly a dream come true."** After just three months, Jeff was promoted to **operations manager**, and then in February 2008, **plant manager**. "Being plant manager is very rewarding and a tremendous adventure. I never knew someone could absolutely love their job, but I do. **My new career goal is to become the CEO within the next two years.**" Jeff credits much of his success to his decision to find **new work in the ethanol industry** and the excellent education he received at Minnesota West's biofuels technology program.



Jeff Knutson



## BANNED ENERGY DRINKS FIND NEW USE IN RENEWABLE FUEL

High alcohol content. And lots of caffeine.

That's the not-so-secret formula for the so-called "energy drinks" that were banned by the U.S. Food and Drug Administration, which warns that they can give drivers a dangerous "wide-awake drunk." According to one report on CBS News one Four Loko (the name of one of these drinks) equals 4 cans of beer plus one can of Red Bull plus one espresso. Four Loko raised concern at the FDA for its alleged role in the hospitalization and death of underage college students who had reportedly consumed the beverage at parties.

After the government announced a crackdown on the drinks, four beverage companies pulled them from store shelves by the end of 2010. Still, the question remained: What to do with all the unused and unusable drinks?

Fortunately, a leading waste-recycling and ethanol-producing company was ready to turn the drinks into renewable fuel that is blended with gasoline. **Based in Abingdon, Va., MXI Environmental Services specializes in recovering ethanol from materials that would otherwise be considered hazardous waste.**

MXI was prepared to process hundreds of thousands of the discarded drinks because it had recently expanded its distilled spirits plant.

Discussing the expansion of the facility, MXI President **Ron Potter** said it "represents a significant additional commitment by MXI to its customers to dispose of waste ethanol in an environmentally-friendly way." It seems environmentalists agree. America is pretty good at finding new ways to use old products, says Bonnie Azab at Grist, but "converting Four Loko into fuel represents new heights of creative reuse."

While MXI is the most recent company engaged in recycling alcoholic beverages into ethanol, other companies, such as Parallel Products in Louisville, KY have been in the business for awhile. **Parallel Products is America's leader in unsaleable beverage destruction and recycling**, processing on the order of 13 million cases of distressed or out-of-date beverage products annually.

Now, instead of imperiling drivers, the alcohol from dangerous "energy drinks" can help fuel their cars.

Instead of imperiling drivers, the alcohol from dangerous "energy drinks" can help to fuel their cars.



**Four Loko, other drinks turned into ethanol at Virginia plant**



## CONVERTING WOOD CHIPS TO ETHANOL TAKES ANOTHER STEP FORWARD

Contrary to various rumors, the cellulosic biofuel industry is alive, well and ramping up. In January, New Hampshire-based **Mascoma Corporation** signed an agreement with

**Valero Energy Corp.**, which will invest up to \$50 million to support Mascoma's construction of a commercial-scale **40-million gallon biorefinery to convert wood based materials into ethanol**. Additional financing for the biorefinery is being provided by the State of Michigan and the U.S. Department of Energy.

The plant will be built in **Kinross, Mich.** in partnership with **J.M. Longyear LLC**, a Michigan timber and resources company. Critical to the deal is Valero's commitment to take the entire output of the plant. It is the first such 'offtake' agreement in the industry, Mascoma said. The groundbreaking is expected this year, with first production expected by 2013.

**Bill Brady**, Mascoma's CEO, said, "Valero's proposed investment in our first commercial-scale production facility proves the economic practicality of Mascoma's technology for the conversion of woody biomass into ethanol." Mascoma's scientists have successfully demonstrated a cost-effective method reprogramming bacteria and yeast cells to digest organic material — to produce ethanol from cellulose.

Mascoma has demonstrated the potential for commercial production at its pilot facility in **Rome, N.Y., where production of 200,000 gallons a year began in February 2009**. The Rome facility has the flexibility to operate on a variety of feedstocks. "As we are focusing on wood chips for our first commercial facility in Michigan, in New York we'll initially be testing wood chips, but we will be using switchgrass, corn stover and sugarcane bagasse at various points in our process testing," explained Mascoma's **Kate Casolaro**.

Other investors in Mascoma include General Motors, Marathon Oil, and venture capitalists Kleiner Perkins Caufield & Byers and Vinod Khosla.



Mascoma has demonstrated a cost-effective method reprogramming bacteria and yeast cells to digest organic material — to produce ethanol from cellulose.



"This project is a watershed event in our nation's efforts to create a sustainable source of domestic, renewable transportation fuel."

## BETTING ON BIOFUELS IN NEVADA

Reno, Nev., will be home to one of the nation's first commercial-sized ethanol plant that relies on municipal solid waste – otherwise known as "garbage" – to produce clean-burning biofuels.

California-based Fulcrum BioEnergy, in the final phase of its Department of Energy loan guarantee program, is completing construction on the **Sierra BioFuels Plant, which will produce 10.5 million gallons of ethanol from some 90,000 tons of solid waste a year.**

In addition to supporting some **500 new construction jobs**, the project will benefit the environment by reducing the use of oil, which pollutes the atmosphere, and finding new uses for wastes that would otherwise end up in landfills.

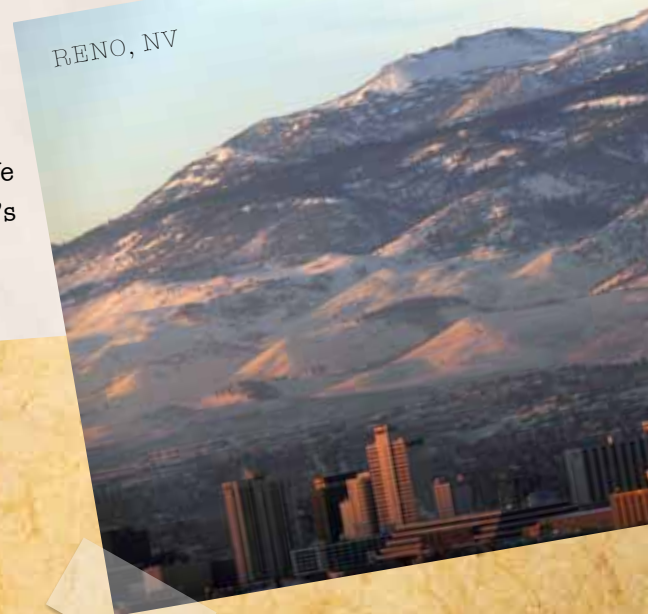
Fulcrum has entered into a 15-year agreement with Waste Management of Nevada to deliver post-sorted municipal solid waste to the plant, which is located in an industrial park outside of Reno.

"This project is a watershed event in our nation's efforts to create a sustainable source of domestic, renewable transportation fuel," said Fulcrum's President and CEO E. James Macias.

"There are very little emissions," James continued. "We aren't burning anything. There's no combustion so there's no carbon dioxide."

500  
JOBS  
CREATED

RENO, NV







## FROM BARLEY TO BIO-FUELS

Recently opened, the **Osage Bio Energy plant in Hopewell, Va.**, is the nation's first ethanol plant to use barley as a feedstock.

Operated by Osage Bio Energy, based in Glen Allen, Va., the facility converts the hulls from locally grown barley into pellet form for use as a renewable fuel. **Employing 55 workers**, the plant is expected to produce **65 million gallons of ethanol a year**, as well as **220,000 tons of barley protein meal for livestock feed**.

Osage is working with KATZEN International, of Cincinnati, OH, to use its technology, capable of producing ethanol from barley within a 200-mile radius of each plant site. In addition to creating 55 jobs and contributing to the local economy, the plant benefits the farming and livestock sectors throughout the area.

The Osage Bio Energy plant is the nation's first ethanol plant to use barley as a feedstock.

**55  
JOBS  
CREATED**



## BREWING ETHANOL FROM WASTE BEER

Large-scale brewing operations can produce millions of pounds of spent yeast and waste beer.

About a dozen years ago, MillerCoors – the joint venture between SABMiller and Molson Coors that sells such brands as Miller Lite, Miller High Life, Coors and Molson Canadian – decided to put the waste to good use.

**At the ethanol plant located at its brewing facility in Golden, Colorado, MillerCoors processes about 16 million barrels of waste beer, expired beer and spent yeast, into 2 million gallons of ethanol annually.** The biofuel is sold to a petroleum refinery that blends it with gasoline for use by service stations.

The ethanol plant is a partnership with Merrick, a Colorado-based company with a 55-year history in the energy generation and transmission industries. The work with MillerCoors was Merrick's first venture into the biofuels industry.

The next time you're hoisting a cold Miller or Coors, you can take pride in the fact that you're helping to promote environmental responsibility and energy security.





# DID

# YOU

# KNOW?

## THE ETHANOL INDUSTRY EQUALS JOB OPPORTUNITIES

Here's just some of  
the good paying  
jobs that ethanol  
industry creates:

Accountant  
Biologist  
Chemical Engineer  
Chemist  
Compliance Officer  
Economist  
Electrical Engineer  
Electrician  
Grain Handler  
Grain Trader  
Human Resources  
Lab Technician  
Laborer  
Logistics Coordinator  
Maintenance/Millwright  
Marketing  
Mechanical Engineer  
Office Support Staff  
Operator  
Plant Manager  
Production Planner  
Safety Professional  
Security  
Truck Driver  
Warehouse Worker

An estimated **13 billion gallons** of  
ethanol production in 2010 helped employ  
**400,677 Americans.**

Ethanol has created more than **330,000 indirect**  
**or encompassing jobs on Main Streets** in  
businesses that help support those who directly  
supply goods and services to ethanol producers.

Workforces span **PhD's and MBA graduates to**  
**hardworking blue-collar men and women.** Here  
are a few examples: accountants, chemists, truck  
drivers, railroad operators and engineers.

In 2010, nearly **70,400 jobs were directly**  
**involved in the production of ethanol** and  
delivery of goods and services to ethanol  
producers.

Ethanol producers are located in  
**29 states and growing.**

In 2010, **83%** of ethanol industry employees  
earned wages in excess of \$40,000, and **99%**  
reported receiving health care and other benefits  
(vs. national average of 71%).





### **HAWAII SAYS ALOHA TO NEW JOBS IN CLEAN ENERGY**

Currently, Hawaii depends on imported oil for more than 85 percent of its liquid fuels. But now the **50th state is on the way to getting 70 percent of its energy from renewable fuels by 2030.**

The state government and Hawaiian Electric Co. have reached an agreement with Aina Koa Pono for the renewable energy company to turn crops into liquid fuel that will help to run Hawaiian Electric's power plants, as well as be used in transportation vehicles.

Using land that has been fallow for 14 years, Aina Koa Pono will grow crops including **sweet sorghum** and eucalyptus on a 13,000-acre energy farm on Hawaii's Big Island. The farm's bio-processing plant will use the latest biomass conversion technology to transform plant matter into biofuel, electricity and gasoline.

With construction slated to begin in 2012 and the processing facility expected to be in operation by 2013, the facility will produce 16 million gallons of renewable fuel. **The construction work will create about 300 jobs**, and the facility will provide **between 100 and 150 permanent jobs**, according to Melvin Chiogioji, cofounder of Aina Koa Pono.

In addition to the plants grown on the energy farm, **Aina Koa Pono will provide a market for local cattle ranchers, coffee producers, macadamia nut farmers and tropical food producers to sell their waste products for processing into liquid fuels.**

**"The time has come to take a bold step toward establishing a self-sustaining energy future for our state,"** Melvin said. "This partnership is critical in helping Hawaii reduce its reliance on fossil fuels."







## PROMOTING ENERGY SECURITY THROUGH NATIONAL SECURITY

To reduce the nation's dependence on imported oil, **Navy Secretary Ray Mabus** has set two ambitious goals:

First, **the Navy and Marines will get half the energy for their ships, aircraft, tanks, vehicles and shore installations from alternative sources by 2020.**

Second, **cut the petroleum use in their more than 50,000 commercial vehicles in half by 2015.** This will be accomplished by replacing the current fleet, as they go out of service, with **flex-fuel vehicles**, hybrid electric vehicles and neighborhood electric vehicles.

Secretary Mabus declared, **"Our Navy and Marine Corps have never backed away from a challenge." And neither has the U.S. ethanol industry.**

Reflecting the industry's commitment, gasoline with 85 percent ethanol blends **(E85)** is now available at **the largest naval complex in the world, the Norfolk, Va., Naval Base, enabling its 2,585 flex-fuel vehicles** in its fleet to fill up with the fuels that they were designed to use.

Protec Fuel, a Florida-based company specializing in ethanol projects, partnered with the Navy Exchange Service Command (NEXCOM) and the U.S. Navy to build and open a new E85 station in the NEX shopping mall, close to the busy entrance to the base. The **Renewable Fuels Association** joined Protec, NEXCOM and the Navy at the ribbon-cutting ceremony for the station on July 30, 2010. Another E85 fuel pump opened at the **Naval Air Station Oceana in Virginia Beach, Va.,** in 2009.

By increasing their use of American-made ethanol, the Navy and Marines are reducing the need for foreign wars to protect the nation's oil imports. As Protec managing partner Todd Garner said, **"This station and E85 will help get our troops home and strengthen our national security through domestically produced fuels."**

Navy Secretary Ray Mabus has set a goal for the Navy and Marines: 50% of all energy used will be renewable by 2020.



## E85 MAKES ITS WAY TO MARINE CORPS BASE IN HAWAII

**Aloha Petroleum** is doing its part for national security and energy security by supplying **E85 fuel to Marine Corps Base Hawaii for more than 70 of its flex-fuel vehicles.**

A locally owned and operated petroleum marketer with about **380 employees in Hawaii**, Aloha has supplied fuels to the military for more than a decade and now is helping the Marine Corps base to meet its goal of reducing gasoline consumption.

**“As always, we are excited to lead the way in conservation, and it is a great privilege to have the first shipment of E85 come to our base,” said Colonel Robert Rice, commanding officer of Marine Corps Base Hawaii.** “The use of E85 alternative fuel along with 70 flex-fuel vehicles, three hybrids and 20 electric carts will lessen [our] carbon footprint and decrease our reliance on imported oil.”

“We believe that the new E85 station at Marine Corps Base Hawaii will help pave the way for wider use of E85 in the Islands,” said Aloha Petroleum President and CEO Richard Parry.



“It is a great privilege to have the first shipment of E85 come to our base.”  
– Col. Robert Rice





With this clean-burning fuel, aviator Greg Poe feels amazing horsepower.

## HIGH-FLYING AVIATOR PILOTS ETHANOL-POWERED FAGEN MX2

When aerobatic performer **Greg Poe** flies the **Ethanol-Powered Fagen MX2**, he isn't only defying gravity. He's also defying any remaining doubts about high-performance biofuels.

At the Offutt Air Force Base in Nebraska, Greg performed amazing aviation aerobatics in his ethanol-fueled plane. Sponsored by Fagen, Inc., one of the largest ethanol plant contracting companies in the United States, he tours the country performing at air shows, amazing his audiences with adroit and astounding maneuvers.

**Greg's plane has the ability to perform at the caliber it does because it is fueled by 100 percent ethanol.** With this clean-burning fuel, he has **amazing horsepower** and is able to flip through the air in different directions, leaving his audience with a performance they won't forget.

Nor should they forget the larger lesson that **ethanol can meet the most demanding challenges** - with flying colors!

## WALLACE PARTNERS WITH ILLINOIS FARMERS

**Kenny Wallace** is a well-known and successful racecar driver. Wallace, who has had over 340 starts in the Sprint Cup Series, is also a strong proponent of ethanol-blended gasoline. Recently, he partnered with Illinois corn farmers via the **Illinois Corn Marketing Board** in promoting the use of ethanol in his races. Wallace understands the importance of corn farmers to Illinois and that corn provides food, feed and fuel and is critical to the rural economy. Says Wallace, **"Americans are looking for alternatives to imported oil. Corn ethanol - well, it's a no brainer."**







INEOS BIOENERGY CENTER

### **NEW JOBS TAKE CENTER STAGE IN CENTRAL FLORIDA**

With help from a federal program that promotes next-generation technologies, an innovative bioenergy facility will produce renewable fuels and electrical power from biomass, including yard, vegetative and wood waste.

It will be located on what was the site of a **35-year-old factory where Ocean Spray Cranberries used to process grapefruit juice.**

In January 2011, INEOS Bio and its joint venture partner, New Planet Energy received a conditional commitment for a \$75 million loan from the U.S. Department of Agriculture's 9003 Biorefinery Assistance Program to build the world's first INEOS BioEnergy Center near **Vero Beach, Fla.**

Slated to begin operations in 2012, the BioEnergy Center will produce 8 million gallons of advanced biofuel per year, together with 6 megawatts of electrical power. **Site preparation and construction are already under way, creating 55 new jobs.** As construction continues, the project is expected to support **175 jobs**, and, when the facility is completed, it will provide at least **50 full-time positions.**

INEOS Bio's technology is based on a patented anaerobic fermentation method, through which naturally occurring bacteria convert gases derived directly from biomass into ethanol. Unlike other technologies that rely on one primary source of feedstock, such as grain, the INEOS Bio process can produce ethanol and renewable energy from many sources, including construction waste, municipal solid waste, and forestry and agricultural waste.

With this flexibility, facilities such as the Florida BioEnergy Center can be built anywhere in the world, wherever there is biomass waste. These facilities can create jobs and provide locally sourced renewable energy for urban and rural communities.

In addition to the USDA loan, the joint venture has received a \$50 million cost-matching grant from the U.S. Department of Energy to help lay the foundation for full commercial-scale development of the biorefining industry in the United States. This project is part of the ongoing effort to reduce the nation's dependence on imported oil and create new clean-tech jobs.

INEOS Bio is the clean-energy division of an international chemical company, while **New Planet Energy is a Texas-based company** that commercializes new technologies that use waste materials and other sustainable resources to produce renewable energy and related products.

**175  
JOBS  
CREATED**



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