TO: Iowa Newspaper Association Member Editors
FROM: Iowa Department of Economic Development
DATE: July 25, 2007
RE: "Iowa Innovators"

The "Iowa Innovators" series is a joint project of the Iowa Newspaper Association and the Iowa Department of Economic Development (IDED). The series is an outgrowth of an idea from member INA publishers. "Iowa Innovators" articles describe initiatives that Iowa communities have used to improve their ability to attract business and industry and demonstrate community innovation. The articles also describe Iowa companies on the leading edge of technology, business expansion, workforce development and recycling.

It is hoped that these article ideas will be published locally and spark community and business initiatives statewide. If you have community or business success stories to share, contact IDED, 200 East Grand Ave., Des Moines, IA 50309, 800.245.IOWA (4692) or e-mail: business@iowalifechanging.com.

The following is a list of companies and communities featured in this round of "Iowa Innovators" articles:

1. With the recent completion of a three-million-gallon ethanol storage tank, **Manly Terminal LLC** takes another step to providing the first of its kind common delivery point for ethanol trading and truck and railroad distribution throughout North America. The $13-million biofuels storage and shipping terminal will provide centralized transportation to national and international markets for Iowa's exploding ethanol and biodiesel industries. **Located in Manly**, the independent ethanol and multi-product truck and railroad reload and trading facility will store 20 million gallons of the corn-based fuel when completed. The project is a partnership among the **Iowa Northern Railway, L.B. Transport of Buffalo Center, Iowa**, and **KAG Ethanol Logistics**.

2. Earlier this spring, **the southeastern Iowa community of Corning** hosted a grand opening ceremony for **POET Energy's (formerly Broin Companies.)** 20th ethanol production facility. With 60 million gallons of production coming online there, the company becomes one of only two ethanol producers with an annual production capacity of more than one billion gallons. "We've come a long way since we started with a one million gallon facility 20 years ago, but what really motivates us is the impact that producing one billion gallons of ethanol has on some of the most pressing issues of our day," says Jeff Broin, CEO of POET. "It stimulates the economy. It improves the environment. And it actually makes our country a more secure place by reducing our need for foreign oil."

3. The **Virtual Reality Applications Center (VRAC) at Iowa State University** was recently the site of a landmark achievement for virtual manufacturing and maintenance process simulation. The demonstration was held in the VRAC's C6 virtual reality environment. The C6 virtual reality room was developed by **Marshalltown-based Mechdyne Corporation**, and is perhaps the most impressive virtual reality environment in the world, according to Jeff Brum, Mechdyne vice president of marketing and business development. "The six-sided system creates the most detailed, realistic virtual imagery to date," says Brum. "The six projected sides surround users, placing them inside 3D models or virtual worlds to create a sense of presence within the virtual space."

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Enhancing Ethanol's Efficiency

With the recent completion of a three-million-gallon ethanol storage tank, Manly Terminal LLC takes another step to providing the first of its kind common delivery point for ethanol trading and truck and railroad distribution throughout North America.

The $13-million biofuels storage and shipping terminal will provide centralized transportation to national and international markets for Iowa's exploding ethanol and biodiesel industries.

Located in the north Iowa community of Manly, the independent ethanol and multi-product truck and railroad reload and trading facility will store 20 million gallons of the corn-based fuel when completed.

And according to Dan Sabin, president and owner of the Iowa Northern Railway, Manly Terminal may be just the first of many economic development projects along the 165 mile short-line railroad.

"We are discussing projects that may turn into more than $3 billion in new business investments along our line," says Sabin, whose rail line has multiple connecting interchanges with the Union Pacific, the BNSF and Canadian National.

Manly Terminal will create 66 new jobs paying an average wage of $24.08 per hour.

The project was awarded High Quality Job Creation (HQJC) tax benefits from the Iowa Department of Economic Development.

The project is a partnership among the Iowa Northern Railway, L.B. Transport of Buffalo Center, Iowa, and KAG Ethanol Logistics.

Anything related to ethanol production will be stored at the 120-acre terminal, says Manly Terminal President Lee Kiewiet.

"Today there are over twenty-five ethanol plants in operation or under construction with more than two billion gallons of production that are less than one hundred miles from Manly, Iowa," says Kiewiet. "Half of all ethanol production in the U.S. will be located within 300 miles of Manly Terminal by end of 2009, making this location the ideal common origin point for the country's ethanol marketing and distribution."

Manly Terminal also provides sufficient storage that allows ethanol producers and marketers to consolidate volumes of ethanol, contributing to improved operational efficiencies.

Other benefits will include rail car trip leasing, unit train economics and faster turn time on deployed rail assets.

Unlike petroleum products such as oil and natural gas, ethanol cannot be distributed through pipelines due to its chemical makeup and attraction to water. As a result, ethanol moves from production to market by utilizing truck, rail and barge transportation services along with transload/storage facilities.

"The key to effectively manage the logistics of the ethanol industry is to coordinate this unique movement of product, and Manly Terminal is positioned to do just that," says Sabin.

"Our rail system of unit trains, consisting of 65 or more tank cars, is a faster, more efficient and economical way to ship ethanol than utilizing a few tank cars at a time," Sabin continues. "We want to remove every obstacle to fluid transportation of ethanol and related products."

Kiewiet agrees, "If we can help an ethanol producer lower transportation costs even three cents a gallon, that makes a huge difference to the owners of a facility producing 50 million gallons of ethanol annually."

Manly Terminal is also going to have a staging area for wind turbine components. Iowa has a burgeoning wind power industry with three new wind turbine manufacturers in the state—Cedar Rapids' Clipper, West Branch's Acciona and Fort Madison's Siemens.

When complete, Manly Terminal will provide an array of strategic benefits to the renewable-fuels industry including expanded market access, improved rail car utilization, spot market alternatives, and trading and arbitrage opportunities.

"As Iowa's biofuel producers in this exploding industry take advantage of these benefits, they'll gain operating efficiencies in producing and moving their product to market," says Kiewiet.

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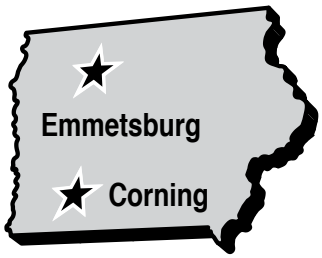
POET's 20 Years of Renewable Energy Success

Twenty years ago Broin Companies got its start in the ethanol business with a facility in Scotland, S.D., that produced one million gallons of ethanol annually.

When Jeff Broin, the 22-year-old general manager of Scotland, was asked about the odds of the facility's success, he answered "You never know. We hope we can do this industry some good, and we think we will."

And do some good they have. Today the company known as POET Energy is the largest dry-mill ethanol producer in the U.S., and an established leader in the biorefining industry.



At two of its Iowa biorefinery facilities, POET is continuing its leadership position in the renewable fuels industry by producing even more ethanol from each kernel of corn and from biomass.

Earlier this spring, the southeastern Iowa community of Corning hosted a grand opening ceremony for POET's 20th ethanol production facility. With 60 million gallons of production coming online there, the company becomes one of only two ethanol producers with an annual production capacity of more than one billion gallons.

The Corning biorefinery will utilize more than 21 million bushels of corn from the area to produce 60 million gallons of ethanol. Built at a cost of $105 million, the facility will provide around 40 jobs with an annual payroll of about $2 million.

"We've come a long way since we started with a one million gallon facility 20 years ago, but what really motivates us is the impact that producing one billion gallons of ethanol has on some of the most pressing issues of our day," says Broin, CEO of POET. "It stimulates the economy. It improves the environment. And it actually makes our country a more secure place by reducing our need for foreign oil."

The Corning facility is the seventh POET biorefining plant in the state of Iowa.

"This facility includes advancements like our patent-pending BPX technology that eliminates the cooking process in ethanol production," explains Broin. "This technology reduces our energy usage by as much as 15 percent in comparison with conventional plants."

While concerns are being raised whether there is enough corn to meet the nation's stated goal of producing 35 billion gallons of ethanol by the year 2017, and supply the needs of the livestock producers and food industries, POET is hard at work constructing the world's first commercial-sized cellulosic ethanol plant in hopes of unlocking the secrets to producing ethanol from crop waste, grass and other materials known as biomass.

Known as Project Liberty, POET is converting its Voyager Ethanol plant in Emmetsburg from a 50 million-gallon-a-year conventional corn dry-mill facility into a 125 million-gallon-a-year commercial-scale biorefinery producing ethanol from not only corn but from corn stover— the stalk, leaves and cobs of the corn plant.

In fact, POET has just produced its first batch of ethanol made from corn cobs. "Corn cobs expand the amount of ethanol that can come from a corn crop with minimal additional effort and little to no environmental impact," says Broin.

"There is no major market for cobs, so we will be producing cellulosic ethanol from an agricultural residue and because the cob is only 18 percent of the above-ground stover, it will not adversely impact soil quality."

The $200-million expansion has an expected completion date in mid-2009 and is receiving a $80-million U.S. Department of Energy grant along with a series of tax abatements and credits from the Iowa Department of Economic Development-administered Enterprise Zone program.

According to Mike Muston, Project Liberty manager. "Project Liberty will create commercialization results that include 11 percent more ethanol from a bushel of corn, 27 percent more ethanol from an acre of corn while using 83 percent less fossil fuels needed to ferment corn into ethanol and reducing water consumption at an ethanol plant by 24 percent."

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Mechdyne Helps Customers See Clearly

Imagine stepping into a room where virtual reality technology allows you to sit in a car or tractor that's yet to be produced. Or imagine floating through the human body's blood stream to understand how a medicine will affect it.

This is not science fiction. Marshalltown-based Mechdyne Corporation is producing virtual reality systems that are doing that and more. In fact, the Virtual Reality Applications Center (VRAC) at Iowa State University was the site of a landmark achievement for virtual manufacturing and maintenance process simulation.

The demonstration was held in the VRAC's C6 virtual reality environment. The C6, developed by Mechdyne, is perhaps the most impressive virtual reality environment in the world, according to Jeff Brum, Mechdyne vice president of marketing and business development.

"The six-sided system creates the most detailed, realistic virtual imagery to date," says Brum. "The six projected sides surround users, placing them inside 3D models or virtual worlds to create a sense of presence within the virtual space."

Brum says the system's 100 million pixel resolution is more than 16 times the resolution of typical immersive rooms and is more than double the resolution of Mechdyne's previous virtual reality installations.

"The standard High Definition television is two million pixels," says Brum. "So the image clarity of our system is amazing."

Mechdyne was founded in 1996 by Dr. Chris Clover, an Iowa State University Ph.D. graduate with extensive experience at the University's Virtual Reality Applications Center.

Recognizing the potential for advanced visualization and interaction technologies, he started the company to provide visualization solutions for the growing demand for customized systems, software, and services.

In 2003 Mechdyne bought Fakespace Systems , a company that provides advanced display technology and implementation services. In 2006, it bought immersive and interactive software maker VRCO, giving the company the suite of products and services to aid in virtually every aspect of high-tech visualization.

"Today we have more than 700 installations in 30 countries throughout the world," says Brum, adding that virtual reality systems can range from $400,000 to $4 million.

Mechdyne's customer base includes GM, NASA, John Deere, Boeing, Sandia National Laboratory, Hess (Petroleum) Corporation and universities across the U.S. and Europe.

"The C6 is an invaluable tool for design and research projects," says James Oliver, ISU professor of mechanical engineering and director of VRAC.

"When Mechdyne demonstrated they could achieve incredible resolution, we immediately saw the potential for gains in information discovery, creativity and knowledge through having more data available at one time."

Brum agrees, "The demonstrations at ISU illustrate that manufacturers can now experience room-scale simulations of their prototype manufacturing processes.

"With the room large enough for several people to work within, it enables manufacturing engineers and plant designers to step inside their manufacturing process concepts before equipment is installed and operational."

Virtual prototyping helps manufacturers eliminate the need to build physical mock-ups of the assembly floor and equipment, allowing companies to bring new products to the marketplace more quickly.

Brum says that virtual reality isn't just for manufacturers. "Researchers in academia, life sciences companies, energy companies, museums and the entertainment industry are all realizing the benefits of advanced visualization systems.

"Our long-term success will be guided by the services and unique environments our clients request from us," he continues.

"We are dedicated to bringing together a range of technologies that will help our customers achieve greater insight by bringing complex data to life."

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