BIO RENEWABLES

IOWA: LEADING THE REVOLUTION

IOWA
economic DEVELOPMENT

THE IOWA
BIORENEWABLES INDUSTRY

Iowa is aggressively focused on the development of the 21st century bioeconomy in the conversion of agricultural crops, biomass and byproducts into bio-based products that produce biofuels, biochemicals, plastics, adhesives, as well as novel food and feed products.

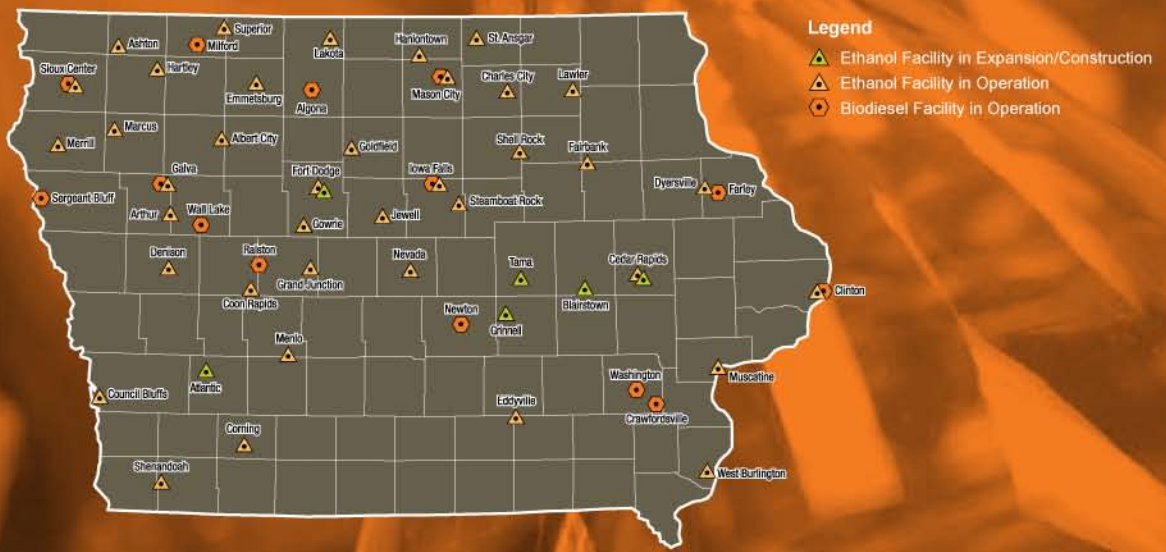
IOWA PROVIDES THE BIORENEWABLES INDUSTRY ACCESS TO:

- Nation's largest supply of biomass
- Robust biorenewables cluster of industry and research organizations
- Skilled workforce
- Thriving business climate in a right to work state
- Capital from state-sponsored programs

IOWA PROVIDES THE NATION'S LARGEST SUPPLY OF BIOMASS WITH THE ABILITY TO HARVEST 68.4 MILLION DRY TONS OF BIOMASS PER YEAR (TOTAL CELLULOSIC AND CROP BIOMASS).

ACCESS TO A ROBUST
"BIORENEWABLES INDUSTRY CLUSTER"

With a concentration of raw materials and abundant agricultural resources, Iowa is leading the way in developing and expanding the market for value-added biomass-based fuels and chemicals. According to the USDA, fuels created from biomass will increase to 10 percent by 2020 and to 20 percent by 2030.



ACCESS TO CAPITAL

Iowa provides numerous capital opportunities for new businesses. **THE IOWA VALUES FUND,** the state's premier 10-year economic development program, assists Iowa companies to expand, attracts new businesses and creates high quality jobs throughout the state. Through June 2010, 596 projects have been funded by the Iowa Values Fund to create and retain 38,000 jobs and attract over $6.1 billion in capital investment in Iowa.

THE IOWA POWER FUND is a $100 million investment and aims to make Iowa more energy independent. The fund invests in research and commercialization projects related to biorenewables and energy efficiency. Through 2009 the fund had invested $35.7 million into 27 projects that have leveraged an additional $190 million in public and private capital investments in Iowa.

THE IOWA DEMONSTRATION FUND provides pre-seed capital up to $150,000 to encourage prototype and commercialization activities by small- and medium-sized companies located in Iowa with high growth potential including the biorenewable industry. Company matching funds are required.

THE IOWA POWER FUND IS A $100 MILLION INVESTMENT FUND THAT AIMS TO MAKE IOWA MORE ENERGY INDEPENDENT. THE FUND INVESTS IN RESEARCH AND COMMERCIALIZATION PROJECTS RELATED TO BIORENEWABLES AND ENERGY EFFICIENCY.

COMPANIES ALREADY AT WORK IN IOWA

ADM
BUNGE
Cargill
MONSANTO imagine
REG
lesaffre
PIONEER A DuPont Company
ROQUETTE America, Inc.
POET Energy inspired.
AJINOMOTO
TATE & LYLE
PENFORD PRODUCTS CO.
WACKER
Where Innovation Comes Naturally
GENENCOR A Danisco Division
VALERO
novozymes Unlocking the magic of nature

ADDITIONAL RESOURCES

Iowa Renewable Fuels Association
www.iowarfa.org

Renewable Fuels Association
www.ethanolrfa.org

National Biodiesel Board
www.biodiesel.org

Iowa Soybean Association
www.iasoybeans.com

Iowa Office of Energy Independence
www.energy.iowa.gov

Bioeconomy Institute - Iowa State University
www.biorenew.iastate.edu

Iowa Energy Center - Iowa State University
www.energy.iastate.edu-becon

Biotechnology Education in Iowa
www.bio-link.org/centersIA.htm

Iowa Careers Consortium
www.smartcareermove.com

Iowa Biotechnology Association
www.iowabiotech.com

National Renewable Energy Laboratory
www.nrel.gov

GLOBALLY
RECOGNIZED R&D INSTITUTIONS

Iowa is home to Iowa State University, University of Iowa and University of Northern Iowa. These public universities are creating opportunities for industry to collaborate to advance biorenewable research and technology commercialization.

- **THE BIOECONOMY INSTITUTE** at Iowa State University provides over 160 faculty and over $51 million in cumulative sponsored research funding from industry and federal agencies that seeks to advance the use of biorenewable resources for the production of chemicals, fuels, materials and energy. www.biorenew.iastate.edu

- **THE BIOCENTURY RESEARCH FARM** at Iowa State University is a $20 million research facility is the world's first fully integrated biomass production farm and processing facility. The facility allows industry partners to test and demonstrate processing technologies before going to commercial scale. www.biocenturyresearchfarm.iastate.edu

- **THE CENTER FOR BIORENEWABLE CHEMICALS** at Iowa State University, established with an $18.5 million grant from the National Science Foundation, will transform the chemical industry by integrating biological and chemical catalysis systems to produce biorenewable chemicals in collaboration with industry partners. www.cbirc.iastate.edu

- **THE CENTER FOR BIOCATALYSIS AND BIOPROCESSING (CBB)** at the University of Iowa provides confidential contract services, fermentation and purification development, process optimization and scale-up. The CBB operates state-of-the-art GLP and cGMP facilities including fermentors up to 1,000-liter capacity with complementary downstream and analytical capabilities. www.uiowa.edu/~biocat

- **THE NATIONAL AG-BASED LUBRICANTS CENTER** at the University of Northern Iowa provides research and technology for the commercialization of biobased lubricants. They have successfully developed and are licensed to market more than 30 biobased lubricant products. www.uni.edu/nabl

- **IOWA PROVIDES THE BIORENEWABLES INDUSTRY WITH AN ESTABLISHED INDUSTRY BASE TO "CO-LOCATE" OR "BOLT-ON" NEW TECHNOLOGIES THAT WILL PRODUCE BIORENEWABLE CHEMICALS TO MAKE BIOBASED PRODUCTS FROM RENEWABLE RAW MATERIALS.**

AN ABUNDANCE OF SKILLED WORKERS

The Iowa biofuels industry alone has created and supported 72,000 Iowa jobs. Whether companies need workers with special technology or science skills, Iowa's exceptional network of 15 community colleges is a great resource and partner for the business community.

Industry-driven programs such as the Iowa Bioprocess Training Center, operated by Indian Hills Community College, in Eddyville, Iowa, is the only center in the nation that is designed specifically to meet the biorenewable training needs of the value-added agriculture and bioprocessing industries. The center works closely with companies such as Cargill, Wacker, Ajinomoto and others.

THE IOWA NEW JOBS TRAINING PROGRAM (260E) IS ADMINISTERED BY IOWA'S COMMUNITY COLLEGES AND OFFERS REIMBURSEMENT FOR JOB TRAINING RELATED EXPENSES. TRAINING FUNDS COME FROM A DIVERSION OF EITHER 1.5 PERCENT OR 3 PERCENT OF THE COMPANY'S NEW EMPLOYEE'S STATE WITHHOLDING TAX.

THRIVING BUSINESS COMMUNITY

Companies doing business in Iowa enjoy one of the nation's most business-friendly economic climates. Iowa is a right to work state and has consistently offered reliable refundable R&D tax credits. While the federal research credits have fluctuated, Iowa is one of very few states to have continuously offered this refundable tax credit for increasing a company's research activities. Iowa has established incentive programs for suppliers of renewable fuels in order to increase their accessibility. By implementing such measures now, Iowa is on track to meet the 25 percent petroleum replacement requirement by 2020.

"IOWA HAS THE LOWEST COST OF DOING BUSINESS IN THE UNITED STATES."

(America's Top States for Business, CNBC 2009)

EXAMPLES OF BIORENEWABLES PROJECTS IN IOWA

POET:

CASE STUDY ON CELLULOSIC ETHANOL

POET (the largest ethanol producer in the world) and DuPont have collaborated in the creation of Project LIBERTY, the nation's first commercial endeavor into cellulosic ethanol – and, appropriately, it's based in Iowa.

POET will add 25 million gallons per year of cellulosic ethanol using corn cobs as a feedstock to an existing grain-to-ethanol plant that is expected to begin production in 2012. POET will be able to produce 11 percent more ethanol from a bushel of corn and 27 percent more from an acre of corn, while reducing fossil fuel consumption and water use.

The Iowa Power Fund Board approved a $14.75 million contract with POET for development of a commercial cellulosic ethanol plant in Emmetsburg, Iowa, providing a match for the $80 million Department of Energy grant. Total project capital investment will be approximately $300 million.

MIREL™ BIOPLASTICS:

CASE STUDY ON BIOPLASTICS

Mirel is sold commercially by Telles, a joint venture between Metabolix and Archer Daniels Midland. After a $280 million investment in December 2009, the first commercial plant for Mirel went online in Clinton, Iowa.

Mirel is biobased and biodegradable plastic made from sugar using corn as the renewable raw material. Mirel is made from polyhydroxyalkanoates (PHA), which are polyesters that are produced naturally when sugar is fermented by bacteria.

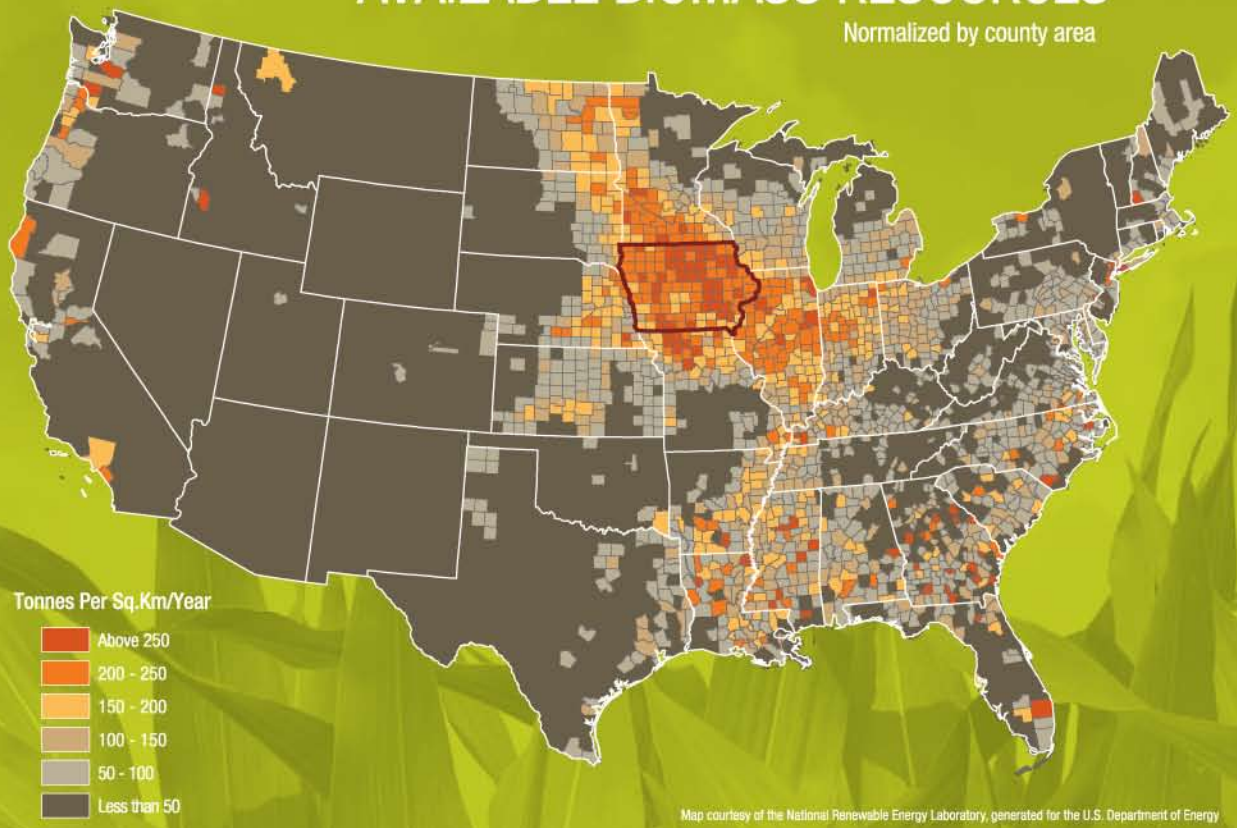
In May 2010, Telles received FDA clearance for the formulated products Mirel F1005 and F1006 for injection molding grades for use in food contact applications.

ACCESS TO RAW MATERIALS

Iowa puts your business in the center of a dynamic biorenewable industry cluster of over 100 contributing companies that have made over $3.5 billion in capital investment projects in Iowa in recent years. Iowa's biofuels industries have added $11.5 billion to Iowa's economy, generated $2.3 billion in new household income and created and supported 70,000 Iowa jobs.

AVAILABLE BIOMASS RESOURCES

Normalized by county area



Map courtesy of the National Renewable Energy Laboratory, generated for the U.S. Department of Energy

IOWA LEADS THE NATION IN ETHANOL PRODUCTION:

- 38 ethanol plants in operation
- Produces approximately 3 billion gallons per year
- Accounts for more than 25 percent of the entire U.S. ethanol production

IOWA IS THIRD IN THE NATION IN BIODIESEL PRODUCTION:

- 14 biodiesel plants in operation
- Produces approximately 318 million gallons per year
- One of the first U.S. states with commercial biodiesel production facilities

IOWA
ECONOMIC DEVELOPMENT

For more information
visit www.IowaLifeChanging.com
or call 515.725.3100 or 1.800.245.4692