



#### DIRECTOR

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## ECONOMIC DEVELOPMENT

The Iowa Energy Center is:

- Providing reliable, objective information on energy and efficiency to create a more educated citizenry.
- Sponsoring and hosting technician training on energy production and energy efficiency.
- Collaborating with Iowa community colleges on new initiatives to train instructors on energy curricula and create on-line, energy-related courses that can be shared statewide.
- Collaborating with the Iowa Area Education Agencies and the Iowa Governor's STEM Advisory Council on new initiatives to provide statewide K-12 energy education opportunities.
- Actively seeking funding opportunities for Iowa and facilitating partnerships to capture new investment in the state.
- Spurring innovation through its grant programs that help Iowa colleges, universities, and nonprofits secure sustainable funding from federal agencies and other external sources.

# EDUCATION AND OUTREACH

## PROGRAM OVERVIEW

Over the past year, the Iowa Energy Center has been building partnerships with a wide range of public education and workforce development stakeholders in Iowa. The aim is new energy education programs that can leverage additional resources, having a greater impact statewide than previous Energy Center efforts. The plan is to pilot these emerging initiatives in FY 2015 and establish one or more formal programs in FY 2016.

As part of this new direction the Energy Center wants to honor its partnerships with energy leaders and innovators that have received funding and support. As a result the annual Impact Awards were created in the four program areas: energy efficiency, bioenergy, renewable energy,

and education and outreach. To broaden awareness educational videos were produced of the Impact Award winners, along with the four program areas highlighting additional grant recipients and partnerships. These can be found on the Energy Center's video channel [www.vimeo.com/iowaenergycenter.org](http://www.vimeo.com/iowaenergycenter.org). These individuals and organizations are making an impact on Iowa's energy future.

In FY 2014 the Energy Center continued to support the Legacy Grant projects that related to education and outreach. These education and outreach activities included the creation of an interactive educational kiosk about renewable energy, as well as the development of online educational tools for educators and homeowners. Energy Center projects reached students, educators, schools, citizens, and communities in both rural and urban Iowa.

## GRANT PROGRAM HIGHLIGHTS

In FY 2014, the Iowa Energy Center supported and endorsed 15 projects related to education and outreach through its competitive grant programs. Under the Energy Center's new grant programs, one Planning Grant was awarded to a community college workforce development project and two Matching Grant projects were endorsed, although neither went on to win external funding, so no Energy Center funds were expended. Twelve projects received no additional funding in FY 2014, but continued to complete their work and final reports. Of those projects supported under the Legacy Grant Program—projects begun prior to the Energy Center's three new competitive grant programs—two are worth special mention here.

### ENERGY EFFICIENCY | KEVIN FEINE

*EAST SAC COUNTY COMMUNITY SCHOOL*

Three of the four school buildings of East Sac County Community Schools are older, multistory buildings built between 1916-1930. This rural public school district had a plan to benchmark current energy demand and reduce consumption by 10%. The Iowa Energy Center helped by providing a \$20,000 Legacy Grant to implement educational activities and promote awareness of energy consumption to change behaviors, as well as promote life-long habits of conservation and a sustainable commitment towards energy management.

### BIOENERGY | KURT ROSENTRATER

*IOWA STATE UNIVERSITY*

Kurt Rosentrater, a researcher at Iowa State University, used an Iowa Energy Center grant to develop a biofuel high school education module aligned with National Teacher Standards. The curriculum included:

- Current corn ethanol and soy-diesel systems.
- An awareness of the biofuel industry's impact on Iowa and the growing needs for renewable energy.
- An appreciation towards energy efficiency and conservation in processes.
- An awareness of future challenges for agricultural and biorenewables industries, as well as issues related to sustaining growing populations.
- Iowa's unique role in the future of biofuels and new energy technologies.



## IMPACT AWARD RECIPIENT EDUCATION AND OUTREACH

Larry Beall, Director Iowa Energy and Sustainability Academy,  
Des Moines Public Schools

### ADVANCING ENERGY EDUCATION

With support from the Iowa Energy Center, Larry Beall, an innovative educator for Central Campus in Des Moines and director of the Iowa Energy and Sustainability Academy, is providing his students with hands-on learning opportunities in renewable energy and bioenergy. In partnership with the Des Moines Area Community College (DMACC) the academy offers both high school and college credits, with students earning four years of high school science credit, two years of high school math credit, and 21 hours of college credit in environmental science. An Energy Center grant provided funding to support solar energy and bioenergy activities as part of the overall curriculum.

The Iowa Energy and Sustainability Academy was established by the Des Moines Public Schools in 2010 to provide career and technical training for grades 9-12 throughout the school district in the areas of energy sustainability, energy conservation, green technologies, and renewable energy.

Energy Center funding helped the academy purchase solar energy training kits for individual and small-group welding and assembly of solar cells into working panels. The students could then test the performance of their panels under different operating conditions. Moreover, the Energy Center supported an all-day field experience at Iowa State University's BioCentury Research Farm and the Center for Biorenewable Chemicals. Students learned about the latest research on bioenergy resources and bio-conversion technologies.



Demonstrations and experiments included the effects of temperature on the conversion of plants to biofuels, the energy density of plant material, alternative storage of plant materials, and the conversion of crops to biorenewable fuels and chemicals.

"This is so important for the State of Iowa because, as most people are aware, they can see wind generators going up all over the state and right now Iowa is leading the pack in that area. We want to also employ strategies in the area of solar, because I think that solving the problem of energy is utilizing all forms, not looking at just one. We want these kids to be well educated in all alternative forms of energy," said Beall.

By exposing students to energy issues at an early age, Beall hopes they will have a better appreciation for our planet and all the resources that it offers, as well as be better prepared for emerging job opportunities in Iowa.

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The reason we did the solar project is because we want to give these kids an edge or a step up to the competition they're going to be facing in college. We're looking at all energies - wind, solar, hydroelectric, and so forth - and this was a fantastic way for us to give the kids a little more of an edge in the area of solar energy, which is becoming very big. - Larry Beall

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## ABOUT THE LEARNING INSTITUTE

The Iowa Energy Center continues to invest in growing and improving its online resources to support public education in energy and energy efficiency options. This includes timely announcements on funding and professional development opportunities.

This past fiscal year, the Learning Institute actively incorporated technology and leveraged social media to build a more robust online presence, bringing more content to Iowans and Energy Center partners. With a newly developed video channel and a company profile page on LinkedIn, the Energy Center is providing engaging educational content about competitive grant programs, recipients, and funding opportunities. You can connect with the Energy Center on Twitter, Facebook, LinkedIn, and Vimeo ([www.vimeo.com/iowaenergycenter.org](http://www.vimeo.com/iowaenergycenter.org)).

The Energy Center continues to be a repository for professional development and learning opportunities for the State of Iowa through its events calendar. In FY 2014



**OUR IMPACT AWARDS HONOR LEADERS AND INNOVATORS IN OUR FOUR PROGRAM AREAS: BIOENERGY, RENEWABLE ENERGY, ENERGY EFFICIENCY, AND EDUCATION AND OUTREACH.**

announcements for 185 events (training, workshops, presentations, webinars, and conferences) were posted. Educators can continue to find information on the Energy Center's Youth and Energy Scholarship Program, as well as links to educational resources.

### KEY BENEFITS:

- Hands-on educational experiences for schools, nonprofits, and businesses through scheduled tours at our two research facilities.
- Educational resources for homeowners about geothermal energy, energy tips, and financial incentives.
- Professional and workforce development opportunities through training, workshops, conferences, presentations, and webinars.
- Educational videos on energy innovation throughout Iowa.