



IOWA ENERGY CENTER

2019 ANNUAL REPORT

IOWA
energy office



A LETTER FROM THE DIRECTOR

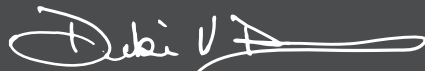
The Iowa Economic Development Authority (IEDA) is home to both the Iowa Energy Office and the Iowa Energy Center (IEC). In 2016, IEDA played a key role in collaborating with the Iowa Department of Transportation under the leadership of then-Lt. Governor Kim Reynolds to develop Iowa's most comprehensive, strategic and forward-looking energy initiative, the Iowa Energy Plan. The Iowa Energy Plan identified and outlined clear goals and strategies to further maximize Iowa's energy resources and capitalize economically and environmentally on Iowa's energy advantages. A plan and its strategies are important to lay the groundwork for implementation activities, but delivering action really makes a difference.

In 2019, the IEC was prepared to take action. In late-March, after robust collaboration and discussion by the IEC Board, IEDA staff and energy stakeholders, two IEC financial resources were re-launched. These resources include a competitive grant program and a zero-interest loan fund to support the development of renewable energy production projects, the Alternate Energy Revolving Loan Program (AERLP). This sparked organizations and Iowans to submit innovative, diverse and impactful projects that are expected to help Iowa maintain its energy leadership position, support the Energy Plan's vision and goals, and positively impact Iowa's energy economy.

Under IEDA's direction, the IEC will continue to support projects with the potential to provide energy economic benefits for Iowa citizens, businesses and organizations. IEDA will continue to be transparent in its operations and activities. And, the IEC Board and IEDA staff will continue to dedicate time and commitment to ensure the most impactful use of the IEC programs and financial resources.

The IEC is eager to continue working diligently to see what can be accomplished in 2020 and beyond.

Sincerely,

A handwritten signature in white ink, appearing to read "Debi Durham", with a long horizontal flourish extending to the right.

Debi Durham
Director
Iowa Economic Development Authority
Iowa Finance Authority



ABOUT THE IOWA ENERGY CENTER

The Iowa Energy Center (IEC) was created by the Iowa Energy Efficiency Act of 1990 and managed by Iowa State University (ISU). Annual funding for the IEC is received from an assessment on the intrastate revenues of Iowa's gas and electric utilities.

In May 2017, Senate File 513 transferred the management and responsibility of the IEC from ISU to IEDA effective October 2017. The IEC's utility-based funding source will sunset on July 1, 2022. IEDA is required to provide an annual IEC report to the General Assembly annually by January 15.

The mission of the IEC is to support projects and programs that align with the seven key focus areas of the Iowa Energy Plan:

1. **Energy Workforce Development** – Expand workforce and career opportunities for workers in the energy sector to ensure the state can attract and train professionals to meet the state's future energy needs.
2. **Technology-based energy Research and Development** – Support technology based-development by encouraging public-private partnerships and innovative manufacturers to develop and bring to market new energy technologies.
3. **Support for Rural and Underserved Areas** – Support rural and underserved areas and vulnerable populations by creating opportunities for greater access to energy efficiency expertise, training, programs and cyber security preparedness for small utilities.
4. **Natural Gas Expansion in Underserved Areas** – Support the expansion of natural gas infrastructure to rural and underserved areas of the state where the absence is a limiting factor to economic development.
5. **Biomass Conversion** – Promote and fund research, development and commercialization of biomass technology to benefit the state economically and environmentally by further realizing the value-added attributes of biomass in the development of bioenergy, biofuels and biochemicals.
6. **Alternative Fuel Vehicles** – Encourage growth of the alternative fuel vehicle market, particularly for electric vehicles, and the infrastructure necessary to support the market.
7. **Electric Grid Modernization** – Support efforts to modernize the electric grid infrastructure of the state to support increased capacity and new technologies.

Senate File 513 also established the formation of a governor-appointed IEC board of directors (see board roster on next page). The 13-seat board has diverse representation from the following organizations: ISU; University of Iowa; University of Northern Iowa; an Iowa private college/university; an Iowa community college; IEDA; Iowa Department of Transportation; Office of Consumer Advocate; Iowa Utilities Board; rural electric cooperatives; municipal utilities; and two representatives from investor-owned utilities.



IOWA ENERGY CENTER BOARD ROSTER

Sector	Board Member	Org./Institution/Company	Term Ends
Academia	Dan Nickey (G)	University of Northern Iowa	6/30/2023
	Gul Kremer (G)	Iowa State University	6/30/2020
	Nathan Young	University of Iowa	6/30/2022
	Valerie Newhouse (L)	Iowa Lakes Community College	6/30/2020
	Jenae Jenison	Central College	6/30/2020
Government	Debi Durham (G)	Iowa Economic Development Authority	6/30/2021
	Geri Huser	Iowa Utilities Board	6/30/2023
	Jennifer Johnson** (G)	Office of Consumer Advocate	6/30/2023
	Stuart Anderson (L)	Department of Transportation	6/30/2020
Utilities	Joel Schmidt (L)	Alliant Energy	6/30/2021
	Rick Olesen (G)	Iowa Lakes Electric Cooperative	6/30/2022
	Robert Berntsen (L)	MidAmerican Energy	6/30/2021
	Timothy Whipple* (L)	Iowa Association of Municipal Utilities	6/30/2021

*Elected Board Chair in 2018

**Elected Board Co-Chair in 2018

(G) Serves on the Grant Committee

(L) Serves on the Loan Committee

The board's main responsibilities include:

- Provide direction regarding policies, procedures and programs.
- Review and approve loan and grant applications. In May 2018, board members volunteered and were selected by peers to serve on grant and loan committees (denoted above). Committee members were instrumental in the development of program administrative rules. Since the grant and loan programs opened in 2019, committee members assist IEDA staff with reviewing applications and making award recommendations to the full board.
- Assist IEDA in the development and approval of the IEC's budget.



2019 IEDA-LED IEC ACTIVITIES

Four board meetings were held in 2019, typically held quarterly. These meetings are open to the public, and meeting agendas and minutes are located on IEDA's website. The board meetings afford the opportunity to not only review and approve grant and loan awards, but with diverse board representation, Iowa Energy Office staff often offer and/or invite external presenters to share information on energy challenges/opportunities, innovative projects/initiatives either ongoing or planned in Iowa. The intent of the presentations and discussions is to be both informative and to prompt additional project ideas and potential future partnerships and collaboration.

After careful, collaborative work by the IEC Board, IEDA staff and stakeholders, the IEC Grant Program and AERLP launched March 20, 2019 (additional information on grant and loan activities are included in this report.)

Upon the transfer of authority of the IEC to IEDA, director Durham requested a financial review by the Auditor of State to gain affirmation of the transferred IEC financial accounts. The Auditor released the final report in November 2019. The report was a review of the IEC for the July 1, 2012 - June 30, 2019 time period.

GRANT AND LOAN PROGRAM OVERVIEW

The IEC's financial resources provide support through:

1. **Grant Program** - Funds issued for eligible projects and programs, which are submitted on a competitive basis by Iowa businesses, colleges and universities, and private nonprofit agencies and foundations.
2. **The Alternate Energy Revolving Loan Program (AERLP)** - Zero-interest loan fund to support the development of renewable energy production projects (e.g., wind, solar, hydro, biomass or a combination of technologies)



GRANT PROGRAM

The IEC Grant Program provides grant funding to Iowa businesses, colleges and universities, and private nonprofit agencies and foundations. Eligible grant-funded projects must align with one of the seven key focus areas of the Iowa Energy Plan. Projects must also provide a benefit for Iowa ratepayers.

Inherited Grants

IEDA inherited 23 active grants in October 2017. Staff continues to monitor these grants. Seven of the inherited grants remain active, all of which are set to end before the end of 2021.

New Grant Activity

Administrative Rules for the program were approved and went into effect March 6, 2019. The grant committee also created a Policies and Procedures Handbook, which the IEC Board adopted on April 3, 2019. These two documents govern how IEDA staff and IEC Board members manage the IEC Grant Program.

The grant program opened for pre-applications March 20, 2019. The launch was communicated by news release, a link on the IEDA website and on IowaGrants.gov. All applicants were required to submit a pre-application via IowaGrants.gov to be considered for funding. At the end of the pre-application period, 61 pre-applications had been received.

The grant committee reviewed each pre-application, as well as recommendations from IEDA staff. After review, 19 pre-applications were selected to move forward to the full application phase. Once the full application period closed, the grant committee met again to review the applications. Ten of the 19 applications scored high enough to merit funding during the first round of awards, totaling over \$2.6 million.

1. Iowa State University - Smart Peak Power Avoidance - \$263,070: Optimize the operation and management of energy intensive in-barn manure drying systems
2. Baldridge Environmental Services, LLC - Wastewater Case Studies to Prove Rate Payer Benefits in Underserved Iowa Communities - \$140,000: Prove the affordability of meeting the DNR regulations with civil engineers' oversight while saving energy
3. Iowa State University - New Paradigm to Solve Unit Commitment and Optimal Power Flow Problems - \$244,367: Dispatch schedules optimized with realistic constraints will lower the cost of a reliable grid.
4. Iowa State University - Strategies for Building Soil Carbon and Generating Carbon Negative Energy in Iowa Counties - \$280,000: Advances renewable natural gas and power production using Iowa waste resources.
5. Iowa State University - Wind Turbines in Cold Winter: Icing Physics and Novel Strategies for Wind Turbine Icing Mitigation - \$303,587: Study wind turbine icing physics and develop novel anti-/de-icing strategies to protect Iowa wind turbines in cold winter.
6. Iowa State University - Development of Low Cost, Safe and High-Performance Sodium Batteries for Wind Energy Storage - \$480,656: Sodium batteries will be developed to cheaply and safely store wind energy to reduce the cost and increase the reliability of electricity.
7. University of Northern Iowa - Utility Workforce Assessment and Strategy Planning - \$129,293: Identify issues and develop a plan to impact current and future talent pipeline.
8. Iowa State University - Toolkit for Identification, Characterization and Energy Evaluation of Low-Efficiency Rural Housing - \$287,354: Toolkit to identify the least-energy efficient homes and motivations for efficiency investments.
9. Iowa State University - Distributed Solar and Wind Power Generation Planning in Rural and Underserved Areas - \$243,036: Plan for distributed, rural solar and wind units with economics, efficiency and sustainability.
10. Iowa State University - Shared μ PMUs for Data-Driven Real-Time distribution monitoring, modeling and Analysis - \$290,400: Demonstrate the usefulness of μ PMUs in MidAmerican systems and provide big data tools for analysis.

The IEC Grant Program plans to launch round two of funding on February 20, 2020. Funding decisions will be made at the August 2020 IEC Board meeting.



ALTERNATE ENERGY REVOLVING LOAN PROGRAM (AERLP)

Inherited Loans

IEDA currently administers 227 open loans inherited with the IEC from ISU, which have not yet reached the maturity date of the term. These loans operate under participation agreements with lenders executed under the IEC at ISU. IEDA keeps in close contact with the lenders to ensure the required payments are forwarded to IEDA and to periodically verify loan balances.

New Loan Activity

The Alternate Energy Revolving Loan Program (AERLP) provides zero-interest loans for the construction of qualifying Alternate Energy Production facilities, spanning a variety of energy-producing technologies. The revolving loan program was capitalized by state funds and utility ratepayer funds after being established in Iowa Code in the late 1990s.

Iowa Code and the more recently adopted Administrative Rules provide specific parameters of eligibility and program administration. Loan funds can cover up to 50% of eligible costs for a given project. The minimum loan amount is \$25,000, and the maximum is \$1 million. Loans awarded under the IEDA will be made directly with selected borrowers and require collateral that meets or exceeds the value of the loan.

The application was made available in IowaGrants.gov after the newly adopted Administrative Rules became effective. The loan program completed one round of loan applications and awards in 2019. The IEC received seven loan applications, totaling over \$1.5 million in requests. Applications were reviewed by IEDA and the IEC Loan Committee based upon eligibility, creditworthiness of the applicant, energy production projections and ability to pledge adequate collateral. Three applications were determined ineligible under the administrative rules and one application withdrew and pursued other financing. The IEC board approved three loans in November, totaling \$211,412 in awards.

The IEC Board continually expresses interest in seeing the program as a catalyst for innovative technologies and approaches. The first round of awards includes an innovative project that incorporates the first-known deployment in Iowa of a zinc-air battery coupled with solar. The battery enables the production of electricity by the solar panels to be delivered to the power purchaser, a municipal utility, in a manner that helps manage peak load and demand. The IEC Board appointed a subcommittee to review the statutory basis for the program and assess how to best leverage it for the most innovative, impactful projects possible.

The AERLP application opened in late November for the first of four quarterly application cycles scheduled for 2020. Application deadlines and IEC Board meeting dates were provided to interested stakeholders and potential applicants. IEDA staff conducted a webinar in December on the program's policies and procedures and provided a demonstration of the online application at IowaGrants.gov.



2019 AERLP LOANS

Organization	Project Name	Award
Brent Johnson	36.6 kW solar project for farming operation and Labre Crop Consulting business in Manson, Iowa	\$25,512
KP Pork, LLC	23.68 kW solar project for hog production in Fairbank, Iowa	\$25,000
Marathon Power Partners, LLC	298 kW solar plus battery storage project to serve the municipal utility for the city of Marathon, Iowa	\$160,900
Total		\$211,412

AERLP FINANCIAL REPORT

FUNDING	Projects (Loans)	Loans Receivable
Available (July 1, 2018)	\$7,047,050	\$10,032,850
Repayments received (July 1, 2018 thru June 30, 2019)	\$3,834,390	(\$3,834,390)
Loans receivable balance (June 30, 2019)		\$6,198,460
Funding Available (June 30, 2019)	\$10,881,440	

NOTES:

- 1) \$2,684,000 in expected loan repayments in FY2020.



IOWA ENERGY CENTER FINANCIAL REPORT

FUNDING		Total
Balance (July 1, 2019)		\$8,403,332
Transfer from Iowa Utilities Board (IUB)		\$4,459,031
		\$12,862,363
OBLIGATIONS/PAYMENTS		Total
Obligations paid (as of June 30, 2019)		(\$988,678)
Remaining obligated funds balance		(\$644,455)
Administrative expenses		(\$246,564)
		\$10,982,666

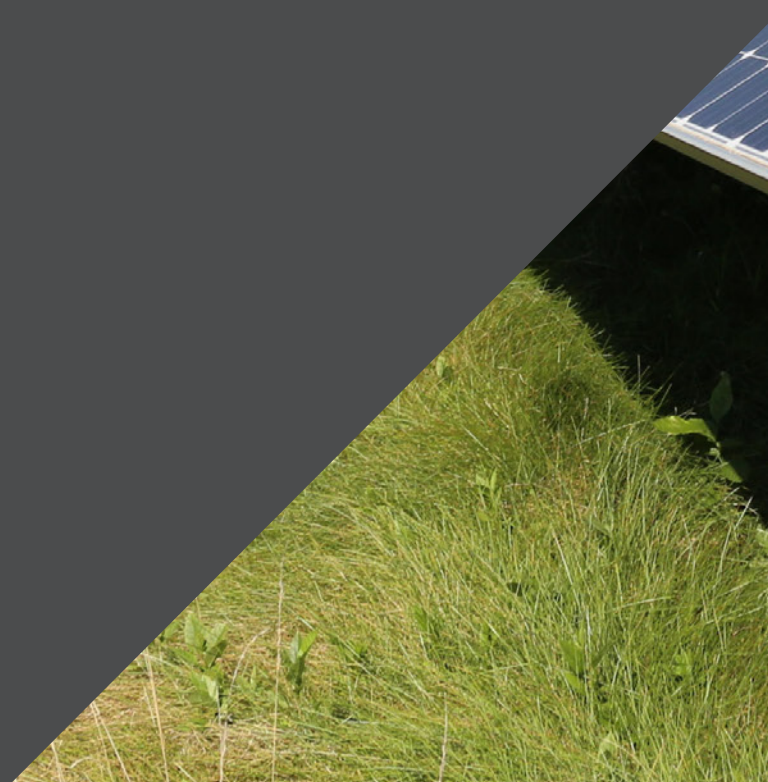
NOTES:

1) Funding for IEDA programs under the Iowa Energy Center sunsets as of June 30, 2022 per 2017 Acts, Chapter 169 Section 37.

2) Per 2018 Acts Chapter 1172 Section 91, some of the funding available for Iowa Energy Center programs is transferred to the General Fund of the State as outlined below (assumes a IUB transfer of \$4.25 million each year).

PROGRAM FUNDING SCHEDULE

	IUB Transfer	To General Fund	To IEDA
FY2020	\$4,690,497	\$1,280,000	\$3,410,497
FY2021 (Estimated)	\$4,250,000	\$2,910,000	\$1,340,000
FY2022 (Estimated)	\$4,250,000	\$3,530,000	\$720,000





**IOWA ECONOMIC DEVELOPMENT AUTHORITY
IOWA ENERGY OFFICE**

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