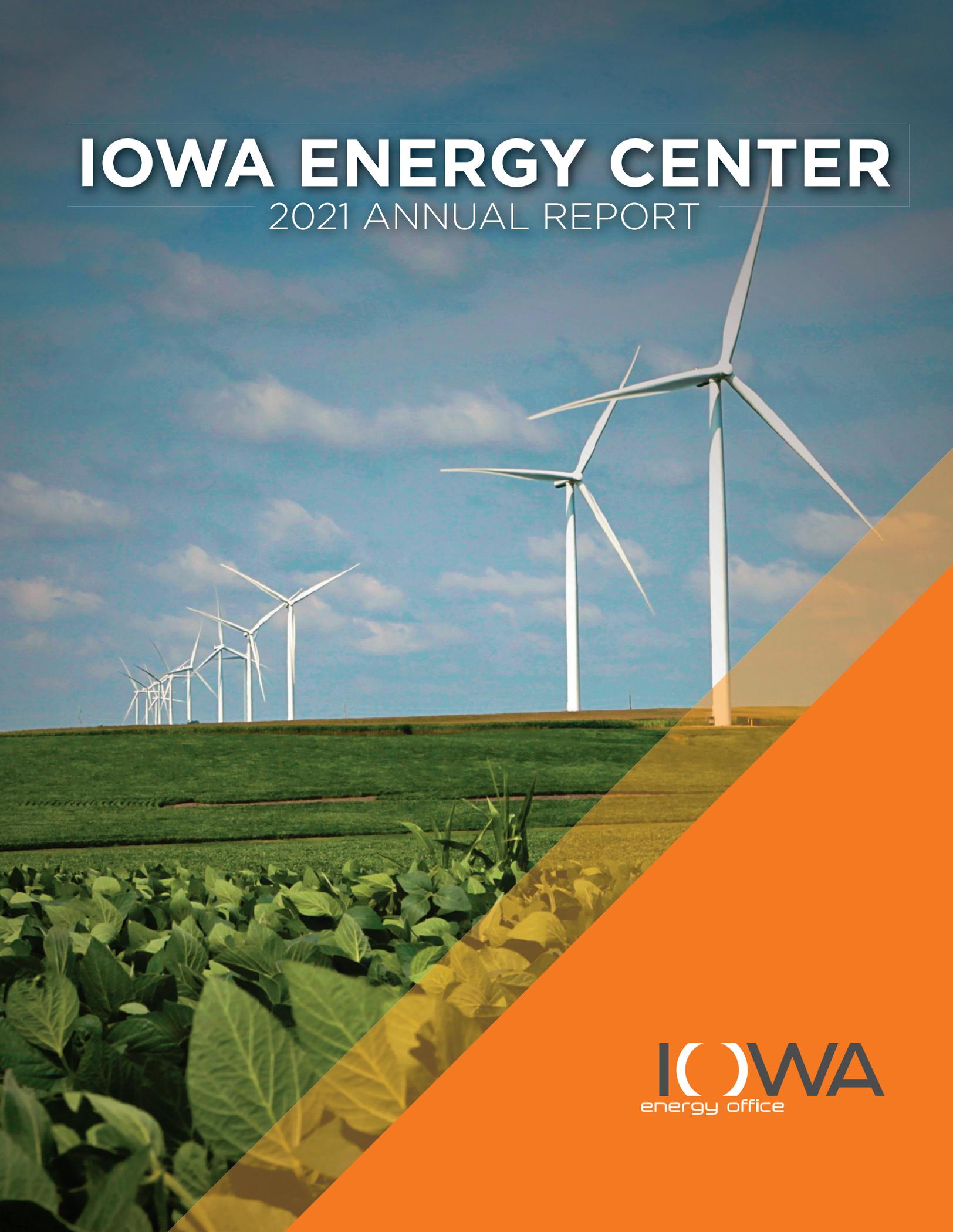


IOWA ENERGY CENTER

2021 ANNUAL REPORT



IOWA
energy office



A LETTER FROM THE DIRECTOR

The Iowa Economic Development Authority (IEDA) is home to the Iowa Energy Office and the Iowa Energy Center (IEC). I am proud to report that in 2021, the IEC was decidedly Active, Productive and Forward-looking.

Active. The pandemic undoubtedly placed additional demands on our agency staff and necessitated the IEC be flexible in how meetings were organized and hosted. The IEC held five board meetings, numerous grant and loan committee meetings, while offering a virtual option to accommodate accessible and comfortable participation by our staff, board members and the public.

Productive. In August 2021, the IEC Board approved approximately \$2.8 million in grants to 12 projects. The projects were quite varied, and the grant recipients span both the public and private sectors. They will address an energy need or opportunity, and the scope and goals will utilize a diverse mix of energy resources and talented Iowa professionals and thought leaders. (See the Grant Program section of the report for project details.)

Specific to the IEC's loan offering, as mentioned in the 2020 annual IEC report, the Alternate Energy Revolving Loan Program had gone largely unchanged since its inception in the late 1990s. We were compelled to re-think and modernize the approach to financing energy projects. Thanks to the efforts and collaboration of my staff and the IEC Board; feedback from energy industry stakeholders; and with approval from the Iowa Legislature and support from Governor Kim Reynolds, the Energy Infrastructure Revolving Loan Program (EIRLP) was established and opened for applications in October 2021. The EIRLP can provide low-interest loans to interested Iowa businesses, rural electric cooperatives, and municipal utilities and for a diverse array of energy infrastructure projects. (See the Loan Program section of the report for more details on the EIRLP.)

IEDA is proud and honored to have the responsibility of managing the IEC, along with support and oversight from the IEC Board. Collectively, the IEDA and the IEC Board have worked to establish competitive programs that build upon Iowa's energy leadership position, support energy innovations and provide energy economic benefits. We welcome support from the Iowa Legislature to extend the sunset date to ensure the IEC continues to assist projects that benefit Iowa's economy.

I would like to thank IEDA staff and the IEC Board for another collaborative and productive year. I could not be prouder of all that we have accomplished, and I am eager to advance and support impactful energy projects in 2022 and hopefully beyond.

Sincerely,



Debi Durham
Executive 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 was managed by Iowa State University (ISU) until October 2017. Annual funding for the IEC is received from an assessment on the intrastate revenues of Iowa's gas and electric utilities.

Senate File (SF) 513 was signed into law in May 2017, transferring the management and responsibility of the IEC from ISU to IEDA. The transfer became effective Oct. 1, 2017, and the IEC's utility-based funding source will sunset July 1, 2022. IEDA is required to provide an annual IEC report to the General Assembly by January 15 each year.

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

1. **Energy Workforce Development** – To 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** – To 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** – To 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** – To 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** – To 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** – To encourage growth of the alternative fuel vehicle market, particularly for electric vehicles, and the infrastructure necessary to support the market.
7. **Electric Grid Modernization** – To support efforts to modernize the electric grid infrastructure of the state to support increased capacity and new technologies.

SF 513 also established a Governor-appointed IEC Board of Directors. (See Board Roster below). The 13-member board has diverse representation from the following organizations: Iowa State University; 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	6/30/2023
	Craig Just (L)	University of Iowa	6/30/2022
	Valerie Newhouse (L)	Iowa Lakes Community College	6/30/2023
	Jenae Jenison (G)	Central College	6/30/2023
Government	Debi Durham	Iowa Economic Development Authority	6/30/2025
	Geri Huser	Iowa Utilities Board	6/30/2023
	Jennifer Johnson (G)	Office of Consumer Advocate	6/30/2023
	Stuart Anderson (L)	Department of Transportation	6/30/2023
Utilities	Terry Kouba	Alliant Energy	6/30/2025
	Rick Olesen (G)	Iowa Lakes Electric Cooperative	6/30/2022
	Kelcey Brown	MidAmerican Energy	6/30/2025
	Troy DeJoode* (L)	Iowa Association of Municipal Utilities	6/30/2025

*Elected Board Chair in 2021

**Elected Board Vice-Chair in 2021

(G) Serves on the Grant Committee

(L) Serves on the Loan Committee

The Board's main responsibilities include:

- Providing direction regarding policies, procedures and programs.
- Reviewing and approving loan and grant applications. To ensure IEC Board leadership is rotated and all members have an opportunity to serve on either the grant or loan committee, during the September meeting, members had an opportunity to volunteer to be selected or reappointed by peers to serve on grant and loan committees as denoted in the chart above. Committee members were instrumental in the development of program administrative rules. Once the grant and loan programs opened in 2020, committee members assisted IEDA staff with reviewing applications and making award recommendations to the full Board.
- Assisting IEDA in the development and approval of the IEC's budget.



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2021 IEDA-LED IEC ACTIVITIES

Four quarterly and one special board meeting were held in 2021. Board meetings are typically held quarterly and are open to the public. Meeting agendas and minutes can be found on IEDA's website. Board meetings provide not only the setting to review and approve grant and loan awards but, with such diverse board representation, Iowa Energy Office staff value and embrace the opportunity to provide pertinent updates on IEDA-led energy initiatives and invite external presenters to share information on energy challenges / opportunities and innovative projects / initiatives either ongoing or planned in Iowa. The presentations and discussions are intended to be both informative and to prompt additional project ideas and potential future partnerships and collaboration.

The COVID-19 pandemic has undoubtedly presented challenges at times to hosting meetings. However, the IEC Board met regularly by providing a virtual option and with some meetings open to in-person participation. There were several positive and impactful activities in 2021, including:

- A successful grant funding round, which included a robust and diverse mix of energy resources and applicants as described in this report.
- Supporting the development of renewable energy production projects via the Alternate Energy Revolving Loan Program (AERLP). (Information on AERLP loan activities is located below.)
- Collaborative dialogue with the IEC Board, a survey of energy stakeholders and approval from the Iowa Legislature led to the development of a new supportive energy program, the Energy Infrastructure Revolving Loan Program (EIRLP). (Additional information on the EIRLP is below.)
- In May, Troy DeJode with the Iowa Association of Municipal Utilities was named the new chair, and Dan Nickey with the University of Northern Iowa was re-elected as the vice chair. The outgoing board chair was Joel Schmidt with Alliant Energy.

GRANT AND LOAN PROGRAM OVERVIEW

The IEC's financial resources provide support via two pathways:

1. Grant funds that may be issued for eligible projects and programs. Applications are submitted on a competitive basis by 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.
2. The Energy Infrastructure Revolving Loan Program (EIRLP), which opened for applications in October 2021, replacing a previous energy loan program, the AERLP. The EIRLP provides low-interest loans for energy infrastructure projects that facilitate electricity or gas generation, transmission, storage, or distribution.

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 the responsibility of monitoring 23 grants when responsibility for the program was transferred from ISU to IEDA. One "inherited" grant, scheduled to close at the end of Calendar Year 2021, remains open.

2021 Grant Activity

Administrative Rules for the IEC Grant Program went into effect in March 2019. The Grant Committee recommended an updated Policies and Procedures Handbook, which the IEC Board adopted in February 2021. These two documents govern how IEDA staff and IEC Board members manage the program.

The grant program opened for pre-applications on February 11, 2021. The launch was communicated by a press release posted 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. By the end of the pre-application period, 75 pre-applications were received with funding requests totaling over \$22.2 million.

The IEC Grant Committee then met to review and score each pre-application, taking IEDA staff recommendations into consideration. The minimum score to move forward with a full application during the most recent round of funding was 25 out of 32. After review, 40 pre-applications scored high enough to move forward to the full application phase. Three applicants elected not to proceed with a full application. The IEDA Grant Committee reviewed and scored 37 full applications, with funding requests totaling over \$10.4 million. A minimum score of 112 out of 160 was necessary to be considered for funding by the IEDA Board. Twelve applications totaling over \$2.8 million in requests that met the minimum score were submitted to and approved by the IEC Board in August 2021.

2021 GRANT PROGRAM RECIPIENTS

Grant Title	Recipient Organization	Project Summary	Award Amount
Mobile Power for Rural Wastewater Treatment and Community Resiliency	Baldrige Environmental Services, LLC	The project will create a mobile power trailer/unit for innovative small town wastewater treatment, powered by solar/battery storage to increase resilience.	\$122,500
Building Enclosure Council of Iowa Educational Programs	Building Enclosure Council of Iowa	The council plans five Building Science educational events per year, including one large event that has multiple subjects.	\$27,800
Developing a Pilot-Scale Business Model for Monetizing Carbon Capture on Solar Energy Farms	Impact 7G	The project aims to create a business model for monetizing carbon capture on utility-scale solar energy farms on reclaimed land.	\$297,000
GIS Tool to Plan Mitigation and Recovery of Gridlines Under Natural Hazards to Improve Resiliency	Iowa State University	The project aims to develop a Geographic Information System (GIS) mapping tool for planning mitigation and enhancing situational awareness of power utilities.	\$235,551
Artificial Intelligence-Assisted Robotic Mapping of Underground Infrastructure	Iowa State University	The project will develop an AI-robot platform to automate mapping of underground infrastructure.	\$300,000
From the Landfill to the Grid: Repurposing Used Batteries for Resilient Grid Storage	Iowa State University	The project will work to refurbish spent Li-Ion batteries for second-life applications on the electric power grid.	\$294,859
Control and Coordination of Solar+Storage for Enhanced Resiliency	Iowa State University	The project proposes to enhance grid resiliency by control of solar plants/ devices with storage.	\$283,500
Micro-DERMS: DERMS for Real-time Monitoring and Control of Mobile Microgrids and DER Distribution Grid	Iowa State University	This project looks to develop a cost-effective technology to integrate renewables into utility data systems.	\$300,000
Advanced 3D Optical Sensing and Peening Technologies for Crack Mitigation in Natural Gas Pipelines	Iowa State University	This project aims to develop a pre-service inspection and crack mitigation solution for gas pipelines.	\$255,472
Electrical Energy from Ethanol	University of Iowa	The project objective is to create electricity from ethanol by creating low cost, scalable ethanol fuel cell systems.	\$417,137
Modeling Solar Radiation Potential and Urban Heat Utilizing Mobile Sensors and Topographic Data	University of Northern Iowa	The project looks to create detailed solar radiation and urban temperature maps across Iowa with web-based dissemination.	\$170,370
Driving Electric in Rural NE Iowa: An Analysis, Planning, Workforce, and Major Employer Partnership	Winneshiek Energy District	The project will create an EV prosperity collaborative for communities, employers, workers and individuals in Northeast Iowa.	\$171,235

The IEC Grant Program plans to launch round four of funding in February 2022. Funding decisions will be made at the August 2022 Board meeting.



ALTERNATE ENERGY REVOLVING LOAN PROGRAM (AERLP)

The Alternate Energy Revolving Loan Program has provided zero-interest loans for the construction of qualifying Alternate Energy Production facilities since its inception in the late 1990s. IEDA currently administers approximately 100 AELRP loans, which have not yet reached their maturity date of the term, “inherited” from ISU when the IEC transferred to IEDA. These loans operate under participation agreements with lenders that were executed under the IEC at ISU. IEDA maintains close contact with the lenders to ensure the required payments are forwarded to IEDA and to periodically verify loan balances.

The IEC at IEDA continued to operate the program in 2021 through a collaborative approach with the IEC Loan Committee, which made recommendations to the board. In the first half of 2021, the IEC awarded two loans for solar projects to agricultural operations, described below.

2020 AERLP LOANS

Organization	Project Name	Award
Ryan Wangsness	36 kW solar project for chicken production operation, Decorah IA	\$38,887.50
Sievers Family Farms	155 kW solar project for beef cattle and grain production	\$149,200

AERLP FINANCIAL REPORT

Funding	Projects (Loans)	Loans Receivable
Available (July 1, 2020)	\$14,014,255	\$4,858,080
Repayments Received (July 1, 2020 thru June 30, 2021)	\$1,868,260	(\$1,868,260)
Interest Earnings	\$31,668	
Obligations (June 30, 2021)	\$426,889	
Expenses (July 1, 2020 thru June 30, 2021)	(\$1,385,108)	
Loans Receivable Balance (June 30, 2021)		\$2,989,820
Funding Available (June 30, 2021)	\$14,102,186	

ENERGY INFRASTRUCTURE REVOLVING LOAN PROGRAM (EIRLP)

The headlining news for the IEC's loan offering was the development and passage of legislation that transformed the program into a new offering that aligns with the state's energy priorities and a strategy to expand new project types in Iowa.

This pivotal change stemmed from the IEC Board's appointment of a committee to review the statutory basis for the AERLP and work with IEDA staff to develop a proposal for a revised program. Senate File 619, Division XII was introduced and ultimately passed in the 2021 legislative session. This legislation discontinued the AERLP, except for ongoing administration of open loans, and created the Energy Infrastructure Revolving Loan Program (EIRLP). The EIRLP will provide low-interest loans for energy infrastructure projects that facilitate electricity or gas generation, transmission, storage or distribution.

The new program's purpose is to support:

- Energy infrastructure development
- Electric grid modernization
- Energy-sector workforce development
- Emergency preparedness for rural and underserved areas
- Expansion of biomass, biogas and renewable natural gas
- Innovative technologies
- Development of infrastructure for alternative fuel vehicles

After enactment of the legislation, IEDA staff developed, and the IEC Board adopted administrative rules for the program, as well as policies and procedures the Board will review and update at least annually. Many of the new rules and policies are designed to be more accommodating to a variety of project types in comparison to the previous program, which aligns well with the varied purpose objectives. A few key program changes accomplished through either statute, rule or policies/ procedures:

- Rural electric cooperatives and municipal utilities are now eligible borrowers. Serving these borrowers in addition to Iowa businesses will provide energy economic benefits to more Iowans.
- The EIRLP can charge a modest interest rate, which will be below market rate, but will help make the program more sustainable into the future. The current rate is set at 2%.
- The EIRLP's loan term maximum is 15 years, shorter than the previous AERLP. A loan term between 5-10 years is preferred.
- The EIRLP can finance a higher percentage of project costs, currently up to 75%. The remainder of the project costs provided as match may include soft costs. Some project costs may be incurred prior to board approval, which responds to common energy project development scenarios.

IEDA has been marketing the program through a variety of channels, including educating stakeholders about the types of projects eligible under the program, the purpose of the program and the definition of energy infrastructure. A variety of project types are listed in greater detail within the policies and procedures available on the program webpage.

The EIRLP opened for applications on October 1, 2021. Applications are reviewed by staff and the Loan Committee to consider technical, financial and eligibility aspects of the applicant and project. All projects will be required to meet at least one of three criteria, which can be used to score projects if demand for loans exceeds funding available. The criteria established:

- Demonstrate an economic impact to the local community and state,
- Demonstrate a creative or innovative approach to a need or problem, and
- Demonstrate assistance is necessary to reduce the project's risks.

IEDA and the IEC Board look forward to working with more Iowans to utilize this energy financing tool enacted by the 2021 legislature and sharing in the benefits of more impactful projects.



IOWA ENERGY CENTER FINANCIAL REPORT

FUNDING	Total
Balance (July 1, 2020)	\$15,082,026
Transfer from Iowa Utilities Board (IUB)	\$6,440,440
Interest Earnings	\$35,928
	\$12,862,363
OBLIGATIONS/PAYMENTS	Total
Obligations Paid (as of June 30, 2021)	(\$800,281)
Remaining Obligations	(\$5,071,861)
Administrative Expenses	(\$275,792)
	\$15,410,460

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).



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