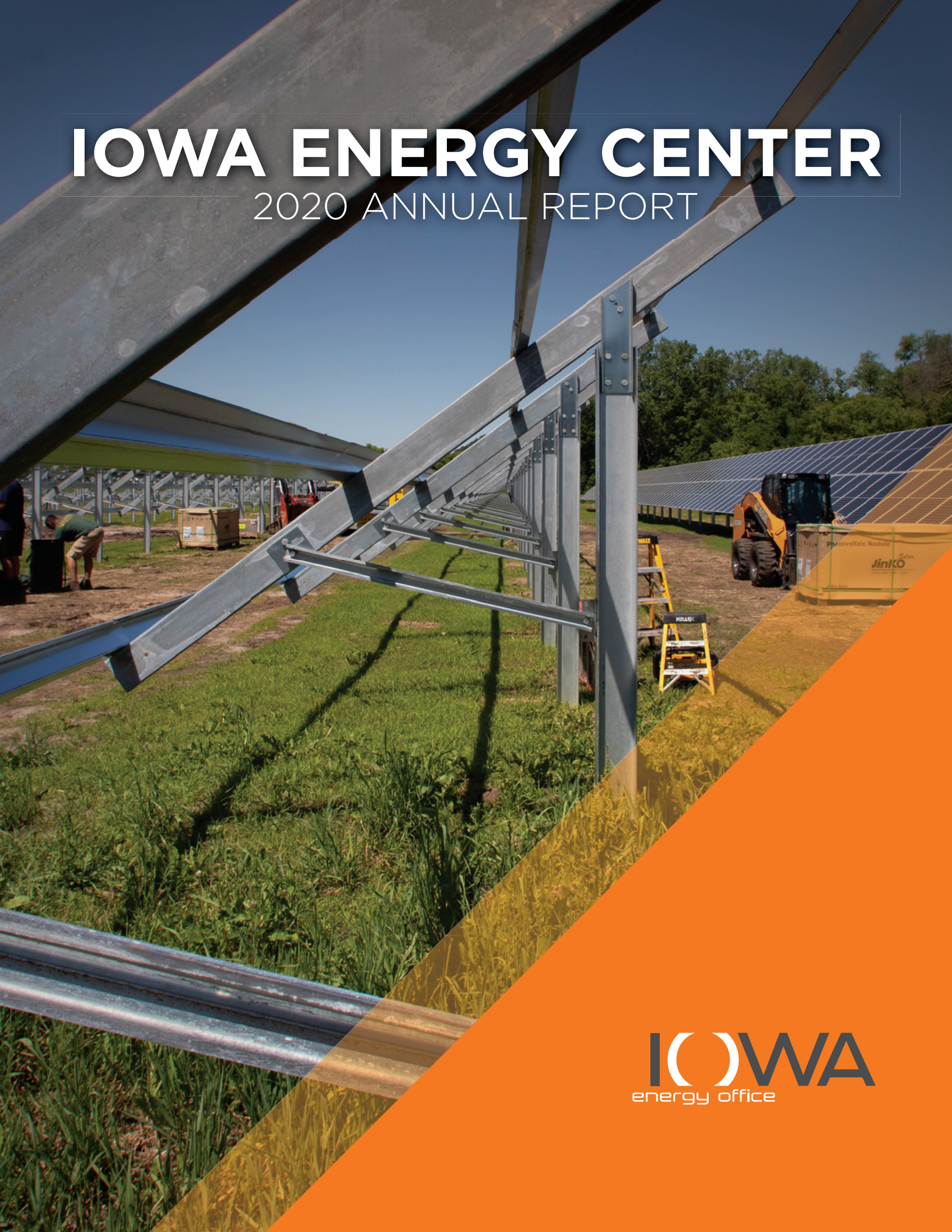
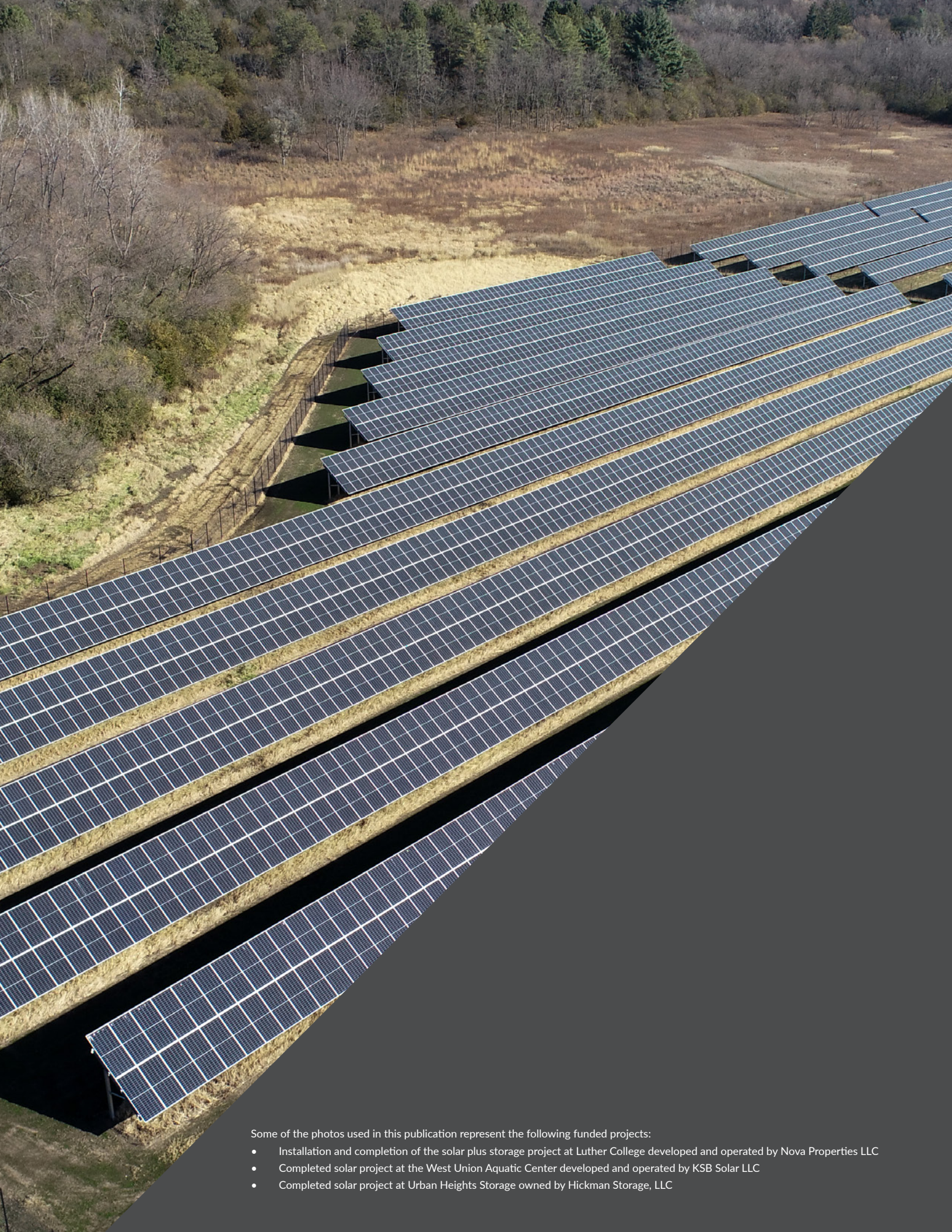


IOWA ENERGY CENTER

2020 ANNUAL REPORT



IOWA
energy office



Some of the photos used in this publication represent the following funded projects:

- Installation and completion of the solar plus storage project at Luther College developed and operated by Nova Properties LLC
- Completed solar project at the West Union Aquatic Center developed and operated by KSB Solar LLC
- Completed solar project at Urban Heights Storage owned by Hickman Storage, LLC



A LETTER FROM THE DIRECTOR

The Iowa Economic Development Authority (IEDA) is home to the Iowa Energy Office and the Iowa Energy Center (IEC). While the pandemic in 2020 led to unprecedented challenges and impacts to the economy, disruptions to project development activities, and further demands to deliver supportive COVID programs, the IEC was undeterred in its ability to manage supportive programs in investing to advance Iowa's energy economy by way of a diverse mix of funded grant and loan projects.

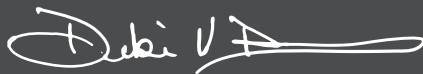
Specific to the IEC's loan offering, the Alternate Energy Revolving Loan Program has provided zero interest loans for energy production projects since its inception in the 1990s and continues to provide new loans through the IEDA. However, the IEDA and the IEC Board believe the time has come to re-think and modernize the approach to financing energy projects. The IEDA Energy Team and an exploratory committee of the IEC Board conducted a survey of energy industry stakeholders and drafted a high-level framework for proposed program revisions. Implementation of adjustments to the program would require legislative changes.

The Iowa Energy Center also manages a grant program. In September 2020, the IEC Board approved approximately \$2.7 million in grants to 11 projects that were quite varied and a great example of Iowa further supporting and maximizing our robust and diverse mix of energy resources, advantages and talented professionals. Please see the grant section of the report for project details.

As Executive Director of IEDA and the Iowa Finance Authority (IFA), my objective for the IEC will be to continue to support projects that have the potential to provide energy economic benefits for Iowa citizens, businesses and organizations. We will seek to amplify resources across the IEDA, including the IEC, and IFA footprint to maximize our supportive funding mechanisms, program offerings and like-initiatives for the betterment of Iowa's energy economy.

I would like to thank and recognize the IEC Board and IEDA staff for its dedication and ample time commitment in advancing support of impactful activities, especially during these unprecedented times. We are eager to hit the ground running in 2021 along with my talented staff and committed IEC Board members. Iowa's energy advancements, innovation and leadership will continue to be on full display.

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 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.

In May 2017, Senate File 513 was signed into law, transferring the IEC to IEDA. The transfer became effective on October 1, 2017, and 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 by January 15 each year.

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

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 the formation of a governor-appointed IEC Board of Directors. The 13-seat board includes diverse representation from the following: 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 | 6/30/2023 |
| | Nathan Young | 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 | 6/30/2021 |
| | Geri Huser | Iowa Utilities Board | 6/30/2023 |
| | Jennifer Johnson (G) | Office of Consumer Advocate | 6/30/2023 |
| | Stuart Anderson (L) | Department of Transportation | 6/30/2023 |
| Utilities | Joel Schmidt* | Alliant Energy | 6/30/2021 |
| | Rick Olesen (G) | Iowa Lakes Electric Cooperative | 6/30/2022 |
| | Timothy Whipple (L) | MidAmerican Energy | 6/30/2021 |
| | Troy DeJooode (L) | Iowa Association of Municipal Utilities | 6/30/2021 |

*Elected Board Chair in 2020

**Elected Board Vice-Chair in 2020

(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. IEC Board leadership is rotated, and all board members have an opportunity to serve on either the grant or loan committee. During the September board meeting, members had an opportunity to volunteer or re-volunteer to be selected by peers to serve on the grant or loan committee as noted in the chart above. Committee members were instrumental in the development of program administrative rules. Since the grant and loan programs opened in 2020, committee members have 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.



2019 IEDA-LED IEC ACTIVITIES

The IEC held four quarterly board meetings and one special board meeting in 2020. Board meetings are typically held on a quarterly basis, open to the public and all meeting agendas and minutes are located on IEDA's website. The 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 values and embraces the opportunity to provide pertinent updates on IEDA-led energy initiatives and invite external presenters to share information on energy challenges and opportunities or innovative projects and 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 pandemic may have forced the IEC Board meetings to be held virtually and the grant application deadline to be extended for applicants during these challenging times, but it did not deter positive and impactful activities, including:

- A successful grant funding round, which included a robust and diverse mix of energy resources and applicants (additional information below.)
- Support for the development of renewable energy production projects via the AERLP (additional information below.)
- Collaborative dialogue in developing a proposal that would revise the AERLP to better align with the Iowa Energy Plan, to utilize available resources as a catalyst for impactful projects and to make it adaptable to today's evolving energy infrastructure marketplace.
- As part of the September special board meeting, new board leadership was elected. Joel Schmidt with Alliant Energy will serve as chair and Dan Nickey with the University of Northern Iowa as vice chair. The outgoing chair was Tim Whipple of MidAmerican Energy, and the former vice chair was Jennifer Johnson with the Office of Consumer Advocate.

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, which 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 Alternate Energy Revolving Loan Program (AERLP) is a zero-interest loan fund to support the development of renewable energy production projects (i.e., 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 the responsibility of monitoring 23 grants in October 2017. Staff continued to monitor the grants inherited during the transfer. There are two active grants, with one scheduled to close at the end of 2020. The last inherited grant closes in 2021.

2020 Grant Activity

Administrative Rules for the IEC Grant Program were approved and went into effect in March 2019. The Grant Committee also updated the Policies and Procedures Handbook, which the IEC Board adopted in February 2020. These two documents govern how IEDA staff and IEC Board members manage the IEC Grant Program.



The grant program opened for pre-applications on February 20, 2020. The launch was communicated by press release, 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, which was extended due to COVID-19, 65 pre-applications were received with funding requests totaling over \$18.6 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 is 25 out of 35. After review, 23 pre-applications scored high enough to move forward to the full application phase. The IEC received twenty-two full applications, with funding requests totaling over \$5.9 million. IEDA staff provided comments to the Grant Committee, which met to review and score each application. A minimum score of 112 out of 160 was necessary to be considered for funding. Eleven applications scored high enough to merit funding, totaling over \$2.7 million in requests, which the IEC Board approved at a special Board meeting in September 2020.

| Grant Title | Recipient Organization | Project Summary | Award Amount |
|--|------------------------------------|--|--------------|
| Iowa rural energy planning | University of Northern Iowa | The project will create workforce development for 20 employees in various energy career fields. | \$395,680 |
| Paired electrolyzer for conversion of crude glycerin and waste CO2 | Iowa State University | The project will work to create an electrolyzer powered by renewable electricity for conversion of glycerin and CO2 to valuable chemicals. | \$156,000 |
| Developing an Iowa energy curriculum for secondary classrooms | University of Northern Iowa | The project will develop and disseminate an energy curriculum (with career connections) for Iowa secondary students. | \$418,696 |
| Low-cost biobased composite material for ultra-durable and recyclable wind turbine blades | Iowa State University | The project will develop low-cost, biobased recyclable turbine blade material with high durability. | \$450,436 |
| An origami structural design for natural gas pipeline rehabilitation | Iowa State University | The project objective is to prevent future pipeline leakages using a novel origami design of the liners. | \$266,720 |
| Iowa rural healthcare micro-grid feasibility analysis | The Energy Group | The project focuses on the analysis of microgrid technologies to determine the cost effectiveness of distributed generation. | \$69,000 |
| Grow energy workforce development program for rural Iowa communities | Energy Association of Iowa Schools | The project will focus on workforce energy training and certification for students and building operators in rural southwest Iowa. | \$190,000 |
| Storing excess solar/wind electricity as biorenewable fuels by electrocatalytic biomass conversion | Iowa State University | The project will develop a technology to store intermittent solar/wind electricity as biofuels. | \$239,227 |
| Predicting battery lifetime with early-life data for grid applications | Iowa State University | The project will develop and teach a software tool for improving prediction of battery lifetime. | \$280,070 |
| Improve battery energy efficiency via structural design and 3D printing for electric vehicles | Iowa State University | The project objective is to create a novel structure of all-solid-state electric vehicle battery and apply 3D printing to manufacture it. | \$244,698 |
| Building Enclosure Council of Iowa Education Program | Building Enclosure Council of Iowa | The project objective is to plan and host five building science educational events, including one large event with multiple subjects (per year.) | \$10,575 |

The IEC Grant Program plans to launch round three of funding on February 11, 2021. Funding decisions will be made at the August 2021 board meeting.



ALTERNATE ENERGY REVOLVING LOAN PROGRAM (AERLP)

Inherited Loans

IEDA currently administers 150 open loans inherited with the IEC from ISU that have not yet reached their maturity date of the term. These loans operate under participation agreements with lenders that were 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.

2020 Loan Activity

The 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 Administrative Rules adopted in March 2019 provide specific parameters of what is eligible and how the program is administered. 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 this program's administration at IEDA are made directly with the selected borrowers and require collateral that meets or exceeds the value of the loan.

The program accepts applications in IowaGrants.gov. The loan program accepted applications on a quarterly basis in 2020 and added an additional cycle in the fall. A total of 12 applications were received, totaling approximately \$2.9 million in requested financing assistance.

Applications were reviewed by IEDA and the IEC Loan Committee, based on factors that include eligibility, creditworthiness of the applicant, energy production projections and ability to pledge adequate collateral. Four of the applications were determined ineligible under the administrative rules, one application withdrew and pursued other financing, and one was denied by the IEC Board. The IEC Board approved six loans, totaling \$1,491,351 in awards. One of the awards requested termination of their agreement after executing and pursued other financing for their project. The recipients of financial assistance in 2020 through the AERLP are listed below.

2020 AERLP LOANS

| Organization | Project Description | Loan Amount |
|----------------------|---|--------------------|
| Hickman Storage, LLC | 43.6 kW solar project for storage rental facility in Urbandale, Iowa | \$54,000 |
| Keaton Martin | 80 kW solar project for hog production in Somers, Iowa | \$77,158 |
| KSB Solar, LLC | 164 kW solar project on seven sites to produce electricity for the city of West Union, Iowa | \$173,601 |
| Nova Properties, LLC | 950 kW solar plus battery storage project to produce electricity and manage peak demand for Luther College in Decorah, Iowa | \$950,000 |
| RNR Solar, LLC | 167 kW solar project on five sites to produce electricity for the city of West Union, Iowa | \$172,215 |
| TOTAL | | \$1,426,974 |



AERLP REVIEW AND PROPOSED CHANGES

The AERLP's statutory language has remained largely unchanged since the beginning of the program in the late 1990s and did not change when the IEC transferred from ISU to the IEDA in 2017. The program's narrow focus on energy generation has prevented it from fully aligning with the seven key focus areas of the Iowa Energy Plan, which is the mission of the IEC as set forth by statute.

The IEC Board appointed a committee to review the statutory basis for the AERLP and suggest possible revisions. This subcommittee convened several times in 2020 and worked with IEDA staff to review the program's current parameters in comparison with the types of outcomes sought by the board and the needs emerging in the energy marketplace. This resulted in a program proposal that was shared with the IEC Board and disseminated to key energy stakeholders along with a survey to gather input. The goal of the IEC Board is to establish a permanent, self-sustaining source of financing that can adapt with the needs of Iowa's energy marketplace, spark innovation and improve the resilience of energy infrastructure.

AERLP FINANCIAL REPORT

| FUNDING | Projects (Loans) | Loans Receivable |
|---|-------------------------|-------------------------|
| Available (July 1, 2019) | \$10,881,440 | \$6,198,460 |
| Repayments received (July 1, 2019 thru June 30, 2020) | \$2,716,404 | (\$2,716,404) |
| Interest earnings (July 1, 2019 thru June 30, 2020) | \$206,434 | |
| Obligations (June 30, 2020) | (\$1,600,091) | |
| Expenses (June 30, 2020) | (\$22,577) | |
| Loans receivable balance (June 30, 2020) | | \$3,482,056 |
| Funding Available (June 30, 2020) | \$12,181,610 | |



IOWA ENERGY CENTER FINANCIAL REPORT

| FUNDING | Total |
|--|---------------------|
| Balance (July 1, 2019) | \$10,982,666 |
| Transfer from Iowa Utilities Board (IUB) | \$3,410,497 |
| Interest earnings | \$217,907 |
| | \$14,611,070 |
| OBLIGATIONS/PAYMENTS | Total |
| Obligations paid (as of June 30, 2020) | (\$225,968) |
| Remaining obligated funds balance | (\$3,076,832) |
| Administrative expenses | (\$256,907) |
| | \$11,051,363 |

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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