State of Iowa
Iowa Energy Center Board
Meeting Minutes of August 11, 2022
at IEDA, 1963 Bell Avenue, Suite 200
Helmick Conference Room
Des Moines, Iowa
Or Via Teams Webinar

Call to order 1:03 p.m.

Board Members Present
Troy DeJoode, Board Chair**
Jenae Sikkink, Board Vice Chair*
Stuart Anderson*
Debi Durham*
Geri Huser*
Jennifer Johnson*
Kelcey Brown*
Scott Stokes*
Craig Just*

Board Members Absent
Terry Kouba
Matt Washburn
Dan Nickey

Iowa Economic Development Authority Staff Present
Brian Selinger*
Amber Buckingham*
Stephanie Weisenbach*
Lisa Connell*
Abbie Christophersen*
Betty Hessing*
Vicky Clinkscales*
Terry Roberson*
Emily Hockins*
Rick Peterson*

Others Present
Tim Morlan, Iowa Finance Authority*
Brenda Biddle, Iowa Utilities Board*
Lisa Lancaster, Slipstream Group*

**Joined via Teams at 1:12 p.m.
*Participated via Teams

Welcome & Introductions by Board Vice Chair Jenae Sikkink
Vice Chair Sikkink welcomed everyone to the August 11th IEC Board meeting.

Roll Call
Betty Hessing did roll call and a quorum was established.

Consideration of May 12, 2022 IEC Board Meeting Minutes

Motion by	Debi Durham
Motion	I move approval of the May 12, 2022 minutes as presented.
Second	Stuart Anderson
Voice Vote	All ayes in favor. Motion approved.

Fiscal Update – Attachment A

Terry Roberson explained that the report before you reflects the total cost incurred during State fiscal year 2022. There will be some minor telephone/postage allocations to come through, but for the most part, this is it. It does reflect the loan award made at the May 12th meeting. The report you will receive in November will reflect the final balances forward. It will also reflect any new grant obligations that are awarded today. Terry Roberson stated he would be happy to answer any questions, but there were no questions.

Competitive Grant Program Update – Amber Buckingham

Amber Buckingham reported that she will start annual site visits next month and she will introduce the grants that were awarded during the last round into those site visits. During those site visits, staff will get updates on all of the happenings from our grantees and we will probably pick a project or two to be presented at the November Board meeting. After I have completed all those annual visits, I will create a status update for the Board which will be available at the next Board meeting. In short order, I will call the Grant Committee together to work on the Policies and Procedures and any other updates to the grant approval and application process. One thing that will likely be changing, is we will be having a webinar prior to the pre-application round to answer questions before they submit their pre-applications. Amber Buckingham asked if there were any questions; no questions were asked.

Grant Modification Request for 20-IEC-019 – Paired Electrolyzer for Conversion of Crude Glycerin and Waste CO2 – Attachment B

Amber Buckingham stated Iowa State University (ISU) has requested a budget modification amendment for award 20-IEC-019 *Paired Electrolyzer for Conversion of Crude Glycerin and Waste CO2.*

Iowa State University has requested a budget modification of $31,452 and would like to move funds from Tuition, Supplies and Materials, and Travel to Payroll Benefits, Salaries and Wages, Other Direct Costs, and Other Direct Costs: Honoraria/Services. The Principal Investigator has indicated that they had to hire a post doc instead of a graduate student to complete the work necessary for the project. Due to the pandemic, they also attended conferences virtually and thus will not use the remaining travel budget.

Administrative Rule 261 IAC 404.7(7)(a) provides that any substantive change to a funded IEC project, including time extensions, budget revisions, and alterations to proposed activities, will be considered an agreement amendment. As this budget modification is over $10,000, it is considered substantive and requires Board approval.

Staff recommendation is to approve the budget modification for 20-IEC-019, moving $31,452 from Tuition, Supplies and Materials, and Travel to Payroll

Benefits, Salaries and Wages, Other Direct Costs and Other Direct Costs: Honoraria and Services.

Vice Chair Sikkink asked if there were questions; no questions were asked.

Motion by	Geri Huser
Motion	I move to approve the grant modification request for 20-IEC-019.
Second	Debi Durham
Roll Call	Yes: 9 Recuse: 0 Motion approved.

Competitive Grant Program Funding Recommendations for Awards – Attachment C

Amber Buckingham stated the Iowa Energy Center (IEC) Competitive Grant Program awards grants for projects that align with one of the seven key focus areas of the Iowa Energy Plan. Projects must also provide a benefit to Iowa ratepayers. Eligible applicants inlcude Iowa based businesses, colleges and universities, and private non-profit agencies and foundations. The maximum grant award is $1,000,000 and the minimum award is $10,000.

As established by 261 IAC 404, the IEC Grant Committee reviews pre-applications and full applications and makes recommendations for funding to the IEC Board. The committee is comprised of five voting members of the IEC Board. The committee reviewed eleven full application submissions as a group and submitted one score sheet per application. Points were assigned based on the scoring matrix established in the Policies and Procedures Handbook. A minimum score of 150 is required to qualify for a grant award. Five full application submissions achieved a score above 150. All of the applications that achieved the minimum necessary score have been recommended for awards. They are as follows:

Application 459111 - Recycling of Used and End-of-Life Lithium-Ion Batteries to Extract Lithium, Anode, and Cathode Materials

Applicant Organization: Iowa State University
Grant Award Request: $347,530
Grant Duration: 36 months
Partners: Siemens, City of Ames
Summary: Scalable recycling process for sustainable recovery of critical materials from used lithium-ion batteries.
Project: The ultimate goal is to use environmentally safe chemical and thermal procedures to extract lithium and critical material from end-of-life electric vehicle batteries. The recycled products will be suitable for reinsertion into the supply chain and ammonia will be a by-product of that recycling process.

Application 458939 - Mining Smart Meter Data for Modeling and Mitigating EV Charging Impacts on Distribution Grid

Applicant Organization: Iowa State University
Grant Award Request: $203,342
Grant Duration: 18 months
Partners: Algona Municipal Utilities, Cedar Falls Utilities, CIPCO, IDOT

Summary: Model EV charging impacts on distribution systems for better infrastructure planning and operation.
Project: The project will model impacts of EV charging activities on power grids, and design optimal planning and operation strategies to help utilities accommodate the increasing penetration of EVs. The results will be packaged as an open-source tool to help utilities analyze AMI data and EV charging impacts.

Application 459178 - Continuous Thermal to Electrical Energy Harvesting from Industrial and Residential Waste Heat
Applicant Organization: Legov Systems Group, LLC
Grant Award Request: $301,000
Grant Duration: 36 months
Partners: Boeing, Accumold, Iowa State University
Summary: Continuous Thermal to Electrical Energy Harvesting from Industrial and Residential Waste Heat.
Project: The first goal is to scale-up the thermal energy harvester to a system capable of continuous electrical generation which the team will accomplish by designing, building, and testing a device capable of continuous operation in Task 1. They will also conduct pilot scale testing at an industrial site.

Application 464620 - Laser Surface Engineering of Natural Gas Pipelines for Extended Service Life
Applicant Organization: Iowa State University
Grant Award Request: $200,000
Grant Duration: 24 months
Partners: Kondex, KBR
Summary: The project is to develop laser surface engineering technologies to extend pipeline's service life.
Project: The goal is to establish an easy-to-use, portable, eco-friendly, and highly controllable solution for pre-service processing of pipeline surfaces (particularly the welding zones) towards the extended service life. The end product will be a handheld laser surface engineering system that can be directly used for in-field processing of pipeline's internal and external surfaces in open air.

Amber Buckingham explained we have to do these recommendations in a few motions because of Board recusals.

Motion by	Stuart Anderson
Motion	I move to approve IEC Grant Committee Funding Recommendation for Application Numbers 459111 (Iowa State University), 459178 (Legov Systems Group) and 464620 (Iowa State University).
Second	Scott Stokes
Roll Call	Yes: 9 Recuse: 0 Motion approved.

Amber Buckingham stated that IDOT and IAMU are partners on project 458939.

Motion by	Geri Huser
Motion	I move to approve IEC Grant Committee Funding Recommendation for Application Number 458939 (Iowa State University).
Second	Debi Durham
Roll Call	Yes: 7 Recuse: 2 (Troy DeJoode & Stuart Anderson) Motion approved.

Amber Buckingham stated we have one more application that was part of this funding recommendation that we would like to discuss and make a separate motion for. That would be Application 463416, which is the Cybersecurity Training for Municipal Utilities. We had some outside questions come in that we were not able to answer sufficiently in the amount of time that was provided, so our recommendation would be to defer the IEC Grant Committee funding decision for project #463416.

Motion by	Debi Durham
Motion	I move to defer Application Number 463416.
Second	Kelcey Brown
Roll Call	Yes: 8 Recuse: 0 (Troy DeJoode was disconnected) Motion approved.

Competitive Grant Program Recommendations for Denial – Attachment D
Amber Buckingham stated the Iowa Energy Center (IEC) Competitive Grant Program awards grants for projects that align with one of the seven key focus areas of the Iowa Energy Plan. Projects must also provide a benefit to Iowa ratepayers. Eligible applicants include Iowa based businesses, colleges and universities, and private non-profit agencies and foundations. The maximum grant award is $1,000,000. The minimum grant award is $10,000.

As established by 261 IAC 404, the IEC Grant Committee reviews pre-applications and full applications and makes recommendations for funding to the IEC Board. The Grant Committee is comprised of five voting members of the IEC Board. The Grant Committee reviewed eleven full application submissions as a group and submitted one score sheet per application. Points were assigned based on the scoring matrix established in the Policies and Procedures Handbook. A minimum score of 150 is required to qualify for a grant award. Six full application submissions failed to achieve a score above 150. All of the applications that failed to achieve the minimum necessary score have been recommended for denial.

Ms. Buckingham gave an overview of each application.

(1) Application 465028 - 3D Bioprinting of Microbial Biofilms for Gas Pipeline Corrosion Prevention. Project partners are Alliant Energy and Black Hills Energy.
(2) Application 463523 - Evaluating and Strengthening Iowa's Power Grid for High Wind/Solar Penetration Levels. Project partners are EPRC, Corn Belt, Alliant and MidAmerican.

(3) Application 464710 - Decision Support Systems for Natural Gas and Integrated Services for Small, Rural Communities. Project partners were IAMU, Harlan Municipal Utilities and the City of Sioux Center.
(4) Application 459663 - Electrochemical Conversion of Storage of Wind Energy as Hydrogen Electrofuel. Project partner is Nistron.
(5) Application 459662 - Improving Energy Resilience of Rural and Underserved Areas via Solar Panel and Second-life Battery. Project partners were NASA, Ideal Energy and the University of Northern Iowa.
(6) Application 458995 - Chemically Recyclable Glass/Carbon Fiber Composites for Wind Turbine Blades. Project partners were TPI, 3M and ADM.

Amber Buckingham stated we will have to consider these recommendations in multiple motions due to Board member recusals.

Motion by	Geri Huser
Motion	Approve IEC Grant Committee Denial Recommendation for Application Number 464710 (Iowa State University).
Second	Debi Durham
Roll Call	Yes: 8 Recuse: 1 (Troy DeJoode) Motion approved.

Motion by	Geri Huser
Motion	Approve IEC Grant Committee Denial Recommendation for Application Number 463523 (Iowa State University).
Second	Craig Just
Roll Call	Yes: 8 Recuse: 1 (Kelcey Brown) Motion approved.

Motion by	Debi Durham
Motion	Approve IEC Grant Committee Denial Recommendations for Application Numbers 459663, 459662, 458995 and 465028 (all Iowa State University).
Second	Stuart Anderson
Roll Call	Yes: 9 Recuse: 0 Motion approved.

Energy Infrastructure Revolving Loan Program (EIRLP) – EIRLP Update – Stephanie Weisenbach stated in this quarterly cycle of the Energy Infrastructure Revolving Loan Program we did not receive any new applications, however we heard from stakeholders about two applications that we will expect to receive in the next cycle, which has a deadline of October 20th, for potential consideration at the November 17th IEC Board meeting. We will set the deadlines for 2023 as soon as future Board meetings are scheduled and we continue to promote the program and look for opportunities to get the word out. As you may recall from the last Board meeting, in that quarter we received three applications and one of them came to the Board and was approved. For the other two we needed more time to complete the review due to the Committee and staff having additional questions and modifications for negotiation. One of the two applications withdrew because they did not have the private equity available anymore as match and it is currently being invested to other projects for that business, but they will have the option to resubmit in the future if they have that match

available.

For the other loan application—Accu-Steel, Inc.—the Loan Committee met and discussed that application. Before we move into that, the Loan Committee has begun its annual review of the Policies & Procedures Handbook for the Loan Program and as part of the program rules, the Handbook is slated for an annual review and any changes that are made would come to the Board for review and approval. Some of the program requirements are in statute or Administrative Rule and that would involve more than just Board approval. However, the way that we structured the program with the Board, when we created it, was to have some of the requirements that are less substantive or subject to change, be folded into a handbook to allow tweaks over time. Stay tuned to the next meeting for that update. If you want to review the current handbook, it is on the Loan Program web page under resources. If you have any questions or comments before the next Board meeting, feel free to reach out. Stephanie Weisenbach asked if anyone had questions; no questions were asked.

Accu-Steel, Inc. Application – Attachment E
Stephanie Weisenbach explained the application is from Accu-Steel, Inc., a business based in Audubon, Iowa. Their original request was for approximately $447,000 for a 5-year term. The resulting recommendation is for $193,000 for a 5-year term at the interest rate set in Policies & Procedures, which is currently 2%.

As some overview, they manufacture fabric covered buildings in Iowa. They intend to construct an R&D prototype building that would integrate thin solar panels into the fabric roof and store excess energy in a battery. The building would be used for research and demonstration for potential customers, including beef cattle producers. The total cost of the project is $596,981.20, some of which is related to construction of the building. The electric utility for this applicant is Raccoon Valley Electric Cooperative.

The Loan Committee recommendation is to loan the amount for the thin solar panels integrated into fabric for the building, not including costs associated with the battery and costs solely related to the building construction.

In the Board Report, we laid out that they did have a bank loan for the match of the project. Due to the revision of the amount, they are confident about the other financing being either private equity or increasing the bank loan, but given the time frame with the negotiation, they were not able to solidify that, but we do have that as a condition to disbursement of funds if the loan is approved by the Board. They also have identified some other incentives not yet fully secured.

In terms of the program eligibility, the applicant had identified the economic impact to the community and State as a potential way to meet the criteria and especially, as we were looking at it, the project saw an alignment with the creative or innovative approach to a need or a problem. This focused on integrating the solar panels into this fabric roof in this application and even though the thin film has been around for a while, this type of application is unique and responds to what the applicant has stated. That is the eligibility component.

An Irrevocable Letter of Credit (ILOC) is pledged by the applicant and is one of the preferred and eligible forms of collateral. IEC Loan funds will not be disbursed by IEDA until collateral has been secured.

Stephanie Weisenbach stated the Loan Committee's recommendation is for this loan to be approved at $193,000 for a 5-year term. Ms. Weisenbach asked if anyone had any questions or comments; no questions or comments were made from Board.

Motion by	Debi Durham
Motion	Approve the Accu-Steel, Inc. application.
Second	Craig Just
Roll Call	Yes: 9 Abstained: 0 Motion approved.

Appointment to Loan Committee - Attachment F

Lisa Connell explained Scott Stokes was appointed to the Board in July 2022 and he is willing to fill a vacancy as a member of the five-person Loan Committee through June 30, 2023.

Motion by	Geri Huser
Motion	Motion to approve appointment of Scott Stokes to the Loan Committee through June 30, 2023.
Second	Stuart Anderson
Voice Vote	All ayes in favor. Motion approved.

Administrative Rules – Adopt amendments to Iowa Energy Center Rules, 261 IAC, Chapter 403 – Attachment G

Lisa Connell explained this is seeking your approval to adopt amendments to 261 IAC, Chapter 403. The purposes of the Iowa Energy Center are listed in Iowa Code Section 15.120. The section was amended by 2022 Iowa Acts, Senate File 2325, to add the following purpose: "To support research and development of strategies for carbon management."

The rule amendments incorporate the additional purpose, change the number of board members required for a quorum from nine to seven, and clarify that meetings may be held electronically.

A Notice of Intended Action was published June 29, 2022. No public comments were received and no changes from the notice are proposed.

Motion by	Craig Just
Motion	I move to approve adopting amendments to 261 Iowa Administrative Code, Chapter 403.
Second	Troy DeJoode
Voice Vote	All ayes in favor. Motion approved.

NEVI – Iowa Electric Vehicle Infrastructure Deployment Plan

Stuart Anderson, from the Iowa Department of Transportation, stated the Infrastructure Bill created a new program for the National Electric Vehicle Infrastructure program or NEVI. The NEVI program provides formula funding to all States over the five-year life of the infrastructure bill—federal fiscal years 2022

to 2026. The State of Iowa has been authorized about $50M over that five-year period to install Direct Current (DC) fast-charging infrastructure that is open to the public and initially targeted to roadways that are on designated alternative fuel corridors. In Iowa, the alternative fuel corridor system is basically the Interstate system—Interstate 29, 35, 80 and 380—so it does not include some of those smaller metro Interstates, like 235, 280 and 74 in the Quad Cities.

In order to access this funding, the first step was each State had to develop a Deployment Plan that was due August 1st. All fifty States did submit their Plan by that date.

Background on the schedule—the Infrastructure Bill was passed in November. This is a new program so it took awhile for some of the guidance to come out. It was in February when that initial guidance came out. The next step was development of proposed rulemaking to get into the details of how these funds are going to be used and what specifications will be required. Those came out a month later than what they were supposed to by the requirements of the Infrastructure Bill—they came out in June—and we are actually still in that comment period, which closes August 22nd. The reason I mention that is there are still some unknowns with this program, so by having the Deployment Plan done, that does not mean we can move right into implementation; we are still waiting for some of those details to be worked out.

That compressed schedule left just a few months to put this Deployment Plan together. Fortunately, we have a tremendous partnership with the Iowa Economic Development Authority—we work very closely with them on a lot of energy related activities—whether it is the development of the State Energy Plan several years ago, or the administration of the Volkswagen Settlement Funds, which had an electric vehicle component to it as well. Thanks to Brian Selinger, Stephanie Weisenbach and Abbie Christophersen for being extremely helpful partners in this effort and we also had some consultant support in order for us to get this Deployment Plan done.

The compressed schedule meant we were probably not able to do as much stakeholder outreach as we would have liked in developing this Plan. We did hold some virtual meetings. We did have a broad stakeholder meeting toward the end of June that was well attended by a wide variety of stakeholders. Of course, our utility partners are especially critical of the deployment of these funds, so we did have some one-on-one meetings earlier in June. We also needed to coordinate with our border States on what this network looks like, so we also had some outreach with them in early June.

In July we focused on developing the Plan; we did get that Plan done and submitted and it is available on IDOT's Electric Vehicle website. It is https://www.IDOT.gov/IowaEVPlan. You can also google IDOT and NEVI to get to the Plan. The Plan is very high-level. There are some very specific requirements for this funding—for example, the full build-out requires that on those Interstates that I mentioned, that there would be DC fast charging infrastructure at least every fifty miles and that each site would have at least four ports at 150 kilowatts. We figure it will take probably 2-3 years to get that full buildout on the Interstate system that meets those requirements. Then we can

start looking at utilizing those funds on other corridors across the State.

In the Plan, we looked at where we have existing DC fast charging infrastructure and what services are provided. We also looked at where there are plans for some of that charging infrastructure and then identified gaps. Are there gaps where we do not have any sites and also gaps where we have sites, but they do not meet those minimum federal requirements? The intention is that when we move into implementation, we will make these funds available through some type of Grant Program. We will let the private sector—working together—whether it is convenience stores, truck stops, other property owners partnering with utilities to identify ideal sites within those gaps and then they will apply and seek funding for installation.

Mr. Anderson stated we are still waiting for some of these rules to become finalized from the federal government. In addition, with these federal funds, there are some additional requirements for project development and how you procure the funds. There are Buy-America requirements that are going to be challenging based on existing rules, so we are hoping the federal government provides some flexibility, at least initially. We still have a lot of things to work out. We are hoping that it will be this winter—probably later in the winter—when we actually are formally ready to have a program that we are ready to release—the funding opportunity and solicit applications.

Our Plan was due August 1st, which kicks-off a review period at the federal level. This Infrastructure Bill created a joint Office of Energy and Transportation and so that joint office is reviewing all fifty State Deployment Plans right now and they have until the end of September to certify those Plans. Once those Plans are certified, that is when you can actually have access to those funds and begin implementation.

Again, the Deployment Plan is available on the website and is high-level. We still have a lot of work to do and that work is going to entail some more stakeholder outreach, again as we get more rules from the federal government and start putting some details together and what our Grant Program process looks like—I am sure we will want and need some additional input in that process. The development of the Deployment Plan was the first step in a multi-step process. We are looking forward to additional discussions. Mr. Anderson asked if anyone had questions; no questions were asked.

Other Business
Jenae Sikkink turned it over to Brian Selinger to give Energy Office updates.

Energy Center Office Updates
Brian Selinger stated we currently have a Board vacancy with Gul Kremer's departure from Iowa State University. ISU is figuring out who will be their preferred representative; that person will then need to apply to the Governor's Office. Brian Selinger stated he expected that to happen relatively soon and then have that person approved and seated by the November Board meeting.

Brian Selinger stated we will be in touch with you as November draws near.

Remaining 2022 IEC Board Meetings	November 17, 2022
Public Comment Period	No public comments.

Vice Chair Sikkink asked for a motion to adjourn.

Motion by	Stuart Anderson
Motion	I move to adjourn.
Second	Craig Just
Voice Vote	All ayes.

Adjournment	1:53 p.m.

Respectfully Submitted,
Betty Hessing, Administrative Assistant

ATTACHMENT A

IEDA								
Financial Report								
Iowa Energy Center								
Fiscal Year 2022								
July 31, 2022					OLD			
	IEC MAIN ACCT				IEC/AEL LOAN ACCT			
	Admin	Projects	Total Fund		Projects	Total Fund	IEDA NOTES REC	OCT 1 2017 NOTES REC
Revenue								
Cash Balance Forward	350,000	20,132,320	20,482,320	0	421,346	421,346	**1,227,814**	**1,762,006**
FY21 IUB Transfer	0	0	0	0	0	0		**0**
Principal Repayments YTD	0	0	0	0	0	1,226,799	**(183,147)**	**(1,043,652)**
Interest Revenue	0	42,456	42,456	0	16,264	16,264		**0**
Other Revenue YTD	0	0	0	0	0	0		**0**
Deappropriations	0	0	0	0		0		**0**
Transfers	0	0	0	0	0	0		**0**
Total Revenue YTD	350,000	20,174,776	20,524,776	0	437,610	1,664,409	**1,044,667**	**718,354**
Expenses								
Administration YTD	(173,751)	0	(173,751)	0	0	0		
Project Payouts YTD	0	(1,526,816)	(1,526,816)	0	(72,536)	(72,536)		
Leg Auth Transfers			0			0		
(18 Acts Ch 1172 Sec 91)								
Total Expense YTD	(173,751)	(1,526,816)	(1,700,567)	0	(72,536)	(72,536)		
Obligations								
Obligations C/F	0	4,997,653	4,997,653	0	421,346	421,346		
Current Year Obligations	0	2,875,424	2,875,424	0	0	0		
Current Year Rescissions			0		0	0		
Current Year Payouts	0	(1,526,816)	(1,526,816)	0	(72,536)	(72,536)		
Balance of Current Year Admin	176,249	0	176,249	0	0	0		
Net Obligations YTD	176,249	6,346,261	6,522,510	0	348,810	348,810		
Balance Available	0	12,301,699	12,301,699	0	16,264	1,243,063		

IEDA
Financial Report
Iowa Energy Center
Fiscal Year 2022
July 31, 2022

ENERGY INFRASTRUCTURE REVOLVING LOAN PROGRAM

			Total			Total
	Admin	Projects	Fund	Admin	Projects	Fund
Revenue						
Cash Balance Forward	350,000	13,650,000	14,000,000	0	0	0
FY21 IUB Transfer	0	0	0	0	0	0
Principal Repayments YTD	0	0	0	0	0	0
Interest Revenue	0	16,399	16,399	0	0	0
Other Revenue YTD	0	0	0	0	0	0
Deappropriations	0	0	0	0		0
Transfers	0	0	0	0	0	0
Total Revenue YTD	350,000	13,666,399	14,016,399	0	0	0
Expenses						
Administration YTD	(22,389)	0	(22,389)	0	0	0
Project Payouts YTD	0	0	0	0	0	0
Leg Auth Transfers			0			0
(18 Acts Ch 1172 Sec 91)						
Total Expense YTD	(22,389)	0	(22,389)	0	0	0
Obligations						
Obligations C/F	0	0	0	0	0	0
Current Year Obligations	0	236,250	236,250	0	0	0
Current Year Rescissions			0		0	0
Current Year Payouts	0	0	0	0	0	0
Balance of Current Year Admin	327,611	0	327,611	0	0	0
Net Obligations YTD	327,611	236,250	563,861	0	0	0
Balance Available	0	13,430,149	13,430,149	0	0	0

Iowa Energy Center Loan Program
Obligation Log
FY2022

	Project Name	Amount Awarded	Amount Recaptured		Balance
May-22	Mission Green LLC	236,250			236,250
					0
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		236,250	**0**		**236,250**

ATTACHMENT B

ACTION

REPORT
IOWA ENERGY CENTER BOARD
AUGUST 2022

From: Iowa Energy Office

Subject: 20-IEC-019 Grant Modification Request

Background: Iowa State University (ISU) has requested a budget modification amendment for award 20-IEC-019 *Paired Electrolyzer for Conversion of Crude Glycerin and Waste CO2*

Iowa State University has requested a budget modification of $31,452 and would like to move funds from Tuition, Supplies and Materials, and Travel to Payroll Benefits, Salaries and Wages, Other Direct Costs, and Other Direct Costs: Honoraria/Services. The PI has indicated that they had to hire a post doc instead of a graduate student to complete the work necessary for the project. Due to the pandemic, they also attended conferences virtually and thus will not use the remaining travel budget.

Administrative Rule 261 *IAC* 404.7(7)(a) provides that any substantive change to a funded IEC project, including time extensions, budget revisions, and alterations to proposed activities, will be considered an agreement amendment. As this budget modification is over $10,000 it is considered substantive and requires Board approval.

Staff Recommendation: Approve the budget modification for 20-IEC-019, moving $31,452 from Tuition, Supplies and Materials, and Travel to Payroll Benefits, Salaries and Wages, Other Direct Costs and Other Direct Costs: Honoraria and Services.

Proposed Motion: **Approve the Budget Modification Request for 20-IEC-019**

Submitted By: Amber Buckingham

Attachments: 20-IEC-019 Budget Modification Request

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Office of Sponsored
Programs Administration
1138 Pearson Hall
505 Morrill Road
Ames, Iowa 50011-2103
Phone: 515 294-5225
Fax: 515 294-8000

May 17, 2022

Iowa Economic Development Authority
Attn: Amber Buckingham
200 East Grand Avenue
Des Moines, Iowa 50309

SUBJECT: **IEDA Grant Number:** 20-IEC-019
Award Title: *Paired Electrolyzer for Conversion of Crude Glycerin and Waste CO2*
Revised Budget Request
ISU Account: AWD-023355 **ISU ID:** 149632
ISU PI: Dr. Wenzhen Li

Dear Amber Buckingham:

The above referenced grant was made to Iowa State University in the amount of $156,000 under the direction of Dr. Wenzhen Li. I am in receipt of a request from Dr. Li to rebudget this project and change the scope of work. The PI's justification for the changes are as follows:

Rebudget Justification:

Dr. Li had budgeted for a grad student plus tuition but he was forced to use his post doc (at partial salary) to complete the work on the award. Remaining tuition dollars will not be used, but will be used to cover overspending in salary and benefits, plus campus lab services and other direct costs that were not originally budgeted. We have also pulled in the travel budget and a portion of the supply budget to cover the overspending in other budget categories.

Amount of Budget Variance: $31,452 direct costs; $39,315 total all costs. Attached please find a detailed budget that outlines these changes.

Scope of Work Change and Justification:

Due to the COVID pandemic, we did attend meetings/conferences, but do not have actual travel, so we are reducing travel. In addition, the grant supports postdoc researcher Dr. Jungkuk Lee (graduated from SUNY-Buffalo) instead of a PhD student to facilitate the progress of the research on CO2 reduction.

We at Iowa State University have reviewed Dr. Li's requests and concur therein. Therefore, we request approval for the revised budget and the scope of work change. If I can provide you with additional information or be of further assistance, please do not hesitate to contact me.

Sincerely,

Amy Arndorfer

Digitally signed by Amy Arndorfer
Date: 2022.05.17 15:14:09 -05'00'

Amy Arndorfer
Senior Award Administrator
Office of Sponsored Programs Administration

cc: Wenzhen Li
Scott Moseley
Mary Scott-Hall
Ryan Smith
Jeremy Neppl

ISU SPA Financial Report					
Period	FY22 - May	Agreement #:	20-IEC-019		
Award	AWD-023355-00001: Paired Electrolyzer for Conversion of Crude Glycer 09/25/2020 (version 1)				
Award Groups					
Grant					
Award	**Original budget**	**1st rebudget approved 3/4/2021**	**Revised origianal budget**	**Budget category change request 5/17/2022**	**Requested budget category totals 5/17/2022**
Award	$156,000.00			$0.00	$156,000.00
AWD-023355-00001	$156,000.00			$0.00	$156,000.00
GR-023355-00001	$156,000.00	$0.00	$156,000.00	$0.00	$156,000.00
ISU Object Class Set: Honoraria/Services	$0.00		$0.00	$17,000.00	$17,000.00
ISU Object Class Set: Indirect Cost	$31,200.00		$31,200.00	$0.00	$31,200.00
ISU Object Class Set: Other Direct Costs	$0.00		$0.00	$410.00	$410.00
ISU Object Class Set: Payroll Benefits	$8,218.00		$8,218.00	$11,733.00	$19,951.00
ISU Object Class Set: Salaries/Wages	$65,615.00		$65,615.00	$2,309.00	$67,924.00
ISU Object Class Set: Student Tuition	$25,717.00		$25,717.00	($23,780.00)	$1,937.00
ISU Object Class Set: Supplies/Materials	$19,250.00	$3,000.00	$22,250.00	($4,672.00)	$17,578.00
ISU Object Class Set: Travel - Domestic	$6,000.00	($3,000.00)	$3,000.00	($3,000.00)	$0.00

ATTACHMENT C

ACTION

REPORT
IOWA ENERGY CENTER BOARD
AUGUST 2022

From: Iowa Energy Center

Subject: Iowa Energy Center Competitive Grant Program Funding Recommendations for Awards

Background: The Iowa Energy Center (IEC) Competitive Grant Program awards grants for projects that align with one of the seven key focus areas of the Iowa Energy Plan. Projects must also provide a benefit to Iowa ratepayers. Eligible applicants inlcude Iowa based businesses, colleges and universities, and private non-profit agencies and foundations. The maximum grant award is $1,000,000. The minimum award is $10,000.

As established by 261 *Iowa Administrative Code* 404, the IEC Grant Committee reviews pre-applications and full applications and makes recommendations for funding to the IEC Board. The committee is comprised of five voting members of the IEC Board. The committee reviewed eleven full application submissions as a group and submitted one score sheet per application. Points were assigned based on the scoring matrix established in the Policies and Procedures Handbook. A minimum score of 150 is required to qualify for a grant award. Five full application submissions achieved a score above 150 All of the applications that achieved the minimum necessary score have been recommended for awards, totalling $1,323,872

The document "Iowa Energy Center Grant Committee Funding Recommendations August 2022" is attached

The committee recommendations must be considered in multiple motions due to board member recusals.

Proposed Motions:

Approve IEC Grant Committee Funding Recommendation for Application Numbers 459111 (Iowa State University), 458939 (Iowa State University), 459178 (Legov Systems Group), 464620 (Iowa State University).

Approve IEC Grant Committee Funding Recommendation for Application Number 463416 (Iowa State University).

Submitted By:	Amber Buckingham
Attachments:	Iowa Energy Center Grant Committee Funding Recommendations August 2022

Iowa Energy Center
Competitive Grant Program
Grant Funding Recommendations
August 11, 2022

Total Recommended Funding: $1,323,872

1. 459111 - Recycling of Used and End-of-Life Li-Ion Batteries to Extract Lithium, Anode, and Cathode Materials
Applicant Organization: Iowa State University
Grant Award Request: $347,530
Grant Duration: 36 months
Partners: Siemens, City of Ames
Summary: Scalable recycling process for sustainable recovery of critical materials from used Li batteries.

Project: The ultimate goal is to use environmentally safe chemical and thermal procedures to extract lithium and critical material from end-of-life electric vehicle batteries The recycled products will be suitable for reinsertion into the supply chain, and ammonia will be a byproduct of the recycling The 1st-year goal is to extract at least 90% of Li via the lithium plating-induced concentration on the anode surface. Based on successful preliminary results, the team will identify the combination of the charging rate, temperature, and load that maximizes the amount of lithium plating The batteries with plated lithium will be dismantled and chemically processed to extract the concentrated lithium and graphite. The hydrogen evolved during the lithium extraction process will be captured and catalytically converted to ammonia. The 2nd-year goal will be to develop processes to extract other critical materials like Ni, Mn, and Co from the cathodes of the batteries The cathode material left behind after Li extraction will be chemically and thermally processed to extract other critical materials The 3rd-year goal will be to validate the efficacy of the developed processes in extracting Li, anode, and cathode material from end-of-life Li cells. Batteries with different levels of remaining life will be recycled, and the amount of extracted material will be quantified to identify the best stage of a battery's life at which the recycling process results in the most efficient extraction.

Recommendation: Approve a total grant award of $347,530

2. 458939 - Mining Smart Meter Data for Modeling and Mitigating EV Charging Impacts on Distribution Grids
Applicant Organization: Iowa State University
Grant Award Request: $203,342
Grant Duration: 18 months
Partners: Algona Municipal Utilities, Cedar Falls Utilities, CIPCO, IowaDOT
Summary: Model EV charging impacts on distribution systems for better infrastructure planning and operation

Project. The project will model impacts of EV charging activities on power grids, and design optimal planning and operation strategies to help utilities accommodate the increasing penetration of EVs The results will be packaged as an open-source tool to help utilities analyze AMI data and EV charging impacts. The specific objectives are·

1. The team has already thoroughly analyzed Algona's AMI data and successfully built their load and grid models Building on this experience, the team will collect more data from Algona, Cedar Falls, and CIPCO, and use the data to analyze their load characteristics and build load models
2 Using AMI data and grid models to run "what-if" scenarios to examine the impacts of EV charging on customer load, contribution to peak demand seasonally, line voltage profiles, and transformer loading.
3. The team will develop estimates of load shapes for charging cycles and charging behavior for level 1 and level 2 charging and different EV demands (Tesla, Chevy Bolt, Ford, Nissan Leaf, etc); The team will look at cold weather temperature effects on charging demand, which means the team would add heating degree and cooling degree temperature effects component to clustering demands. The team will cluster customer demands to know the load shapes for different types of customers, and then superimpose the load shapes for charging onto these customer groups.
4. The team will add a revenue model to look at costs and benefits of EV adoption on utility revenues vs demand charges.

Recommendation: Approve a total grant award of $203,342

3. 459178 - Continuous Thermal to Electrical Energy Harvesting from Industrial and Residential Waste Heat

Applicant Organization: Legov Systems Group, LLC
Grant Award Request: $301,000
Grant Duration: 36 months
Partners: Boeing, Accumold, Iowa State University
Summary: Continuous Thermal to Electrical Energy Harvesting from Industrial and Residential Waste Heat

Project: The first goal is to scale up the thermal energy harvester to a system capable of continuous electrical generation which the team will accomplish by designing, building, and testing a device capable of continuous operation in Task 1. The continuous rotation of the output provides for a significant increase in potential electrical power out of the system.

The second goal is to conduct pilot scale testing at an industrial site which is the focus of Tasks 3 and 4. In Task 3, the team will scale up the continuous energy harvesting device to a size suitable for pilot scale testing in an industrial environment and test it in a laboratory setting During Task 4, the team will install the energy harvester in a field environment, conduct field trials, and evaluate final results Conducting pilot scale testing will be a significant milestone in the development that provides a real-world demonstration of this technology.

The third goal, Task 2, will address manufacturability and cost of the core SMA actuators and will rely on ISU partner's expertise to identify manufacturing methods suitable for production volumes of the shape memory alloy torque elements. The team will also identify vendors and qualify their SMA production process.

Recommendation: Approve a total grant award of $301,000

4. 464620 - Laser Surface Engineering of Natural Gas Pipelines for Extended Service Life
Applicant Organization: Iowa State University
Grant Award Request: $200,000
Grant Duration: 24 months
Partners: Kondex, KBR
Summary: The project is to develop laser surface engineering technologies to extend pipeline's service life.

Project: The goal is to establish an easy-to-use, portable, eco-friendly, and highly controllable solution for pre-service processing of pipeline surfaces (particularly the welding zones) towards the extended service life The end product will be a handheld laser surface engineering system that can be directly used for in-field processing of pipeline's internal and external surfaces in open air. Specific research objectives are to·
1. Identify specific engineering requirements for surface engineering of pipeline steels and develop a nanosecond pulsed laser system for laser polishing and peening experiments
2 Establish laser polishing for surface finishing and develop the relationship between laser parameters and surface topography through parametric study and surface characterization.
3 Establish laser peening for surface strengthening and develop the relationship between peening parameters and surface properties (strength and residual stress) through parametric study and surface property tests
4. Demonstrate the enhanced durability of pipelines after laser processing through fatigue and stress corrosion cracking tests
5 Develop a prototype laser system for processing both external and internal surfaces of pipelines Specifically, laser optics will be integrated with a soft robotic arm that can be navigated to guide the laser beam towards processing of difficult-to-reach internal surfaces.
6. Establish education programs for energy workforce development.

Recommendation: Approve a total grant award of $200,000

5. 463416 – Cybersecurity Training for Municipal Utilities
Applicant Organization: Iowa State University
Grant Award Request: $272,000
Project Duration: 36 months
Partners: IAMU, Cyberhub, ReCIPE
Summary: Cybersecurity training for municipal utilities focuses on employees of small utilities across Iowa.

Project: The goal of the proposed micro-credentials in cyber security for municipal utilities is to develop a series of training modules that teach employees how to apply cybersecurity to improve the security of small utilities The goal is not to convert employees into cybersecurity experts but to develop

cybersecurity skills that help protect the energy sector By partnering with the Iowa Association of Municipal Utilities (IAMU), the Iowa Cyber Hub, and the ReCIPE coalition, the team will be able to provide materials that can serve all of Iowa Typical cybersecurity education is designed for technical students or IT workers; however, this program aims to reach those who do not have a computing degree.

Another goal of the training program is to become self-sufficient after the grant period through training and course fees. As described in the Benefits to Other Groups section, the team will expand training options and reach out to other sectors to offer cybersecurity essentials training to any organization across the state. Team members will also collaborate with ISU EPRC to host the training sessions and issue Continuing Education Credits

IAMU will aid in developing, marketing, and disseminating the training materials and courses The project team will also work with the newly created ReCIPE coalition to get input from the industry and help distribute the materials across Iowa The team will engage the energy sector with IAMU to develop training content and relevance to the energy sector

Recommendation: Approve a total grant award of $272,000

ATTACHMENT D

ACTION

REPORT
IOWA ENERGY CENTER BOARD
AUGUST 2022

From: Iowa Energy Center

Subject: Iowa Energy Center Competitive Grant Program Recommendations for Denial

Background: The Iowa Energy Center (IEC) Competitive Grant Program awards grants for projects that align with one of the seven key focus areas of the Iowa Energy Plan. Projects must also provide a benefit to Iowa ratepayers. Eligible applicants inlcude Iowa based businesses, colleges and universities, and private non-profit agencies and foundations. The maximum grant award is $1,000,000. The minimum award is $10,000.

As established by 261 *Iowa Administrative Code* 404, the IEC Grant Committee reviews pre-applications and full applications and makes recommendations for funding to the IEC Board. The committee is comprised of five voting members of the IEC Board. The committee reviewed eleven full application submissions as a group and submitted one score sheet per application. Points were assigned based on the scoring matrix established in the Policies and Procedures Handbook. A minimum score of 150 is required to qualify for a grant award. Six full application submissions failed to achieve a score above 150. All of the applications that failed to achieve the minimum necessary score have been recommended for denial

The document "Iowa Energy Center Grant Committee Denial Recommendations 2022" is attached.

The committee recommendations must be considered in multiple motions due to board member recusals.

Proposed Motion:

Approve IEC Grant Committee Denial Recommendation for Application Number 463523 (Iowa State University).

Approve IEC Grant Committee Denial Recommendation for Application Number 465028 (Iowa State University).

Approve IEC Grant Committee Denial Recommendation for Application Number 464710 (Iowa State University).

Approve IEC Grant Committee Denial Recommendation for Application Numbers 459663 (Iowa State University), 459662 (Iowa State University), 458995 (Iowa State University).

Submitted By:	Amber Buckingham
Attachments:	Iowa Energy Center Grant Committee Denial Recommendations August 2022

Iowa Energy Center
Competitive Grant Program
Grant Recommendations for Denial
August 11, 2022

Application Number	Application Name	Applicant Organization	Project Summary	Award Request	Project Partners
465028	3D Bioprinting of Microbial Biofilms for Gas Pipeline Corrosion Prevention	Iowa State University	We will develop a 3D printed anticorrosion biofilm coating for underground gas pipelines.	$300,000	Alliant Energy, Black Hills Energy
463523	Evaluating and Strengthening Iowa's Power Grid for High Wind/Solar Penetration Level	Iowa State University	Use software ACEP/FHS to explore low CO2 technology portfolios & identify mid/long-term Iowa benefits	$300,000	EPRC, Corn Belt, Alliant, MidAmerican
464710	Decision Support Systems for Natural Gas and Integrated Services for Small, Rural Communities	Iowa State University	Optimal Natural Gas/energy mix plans are determined under volatility for small, rural communities	$299,705	IAMU, Harlan Municipal Utilities, City of Sioux Center
459663	Electrochemical Conversion of Storage of Wind Energy as Hydrogen Electrofuel	Iowa State University	MOFs in functional thin-film coatings for high-yield conversion of wind energy into hydrogen fuel	$353,414	Nistron
459662	Improving Energy Resilience of Rural and Underserved Areas via Solar Panel and Second-life Battery	Iowa State University	Improve energy resiliency of rural and underserved areas via solar panels and second life batteries	$194,712	NASA, Ideal Energy, University of Northern Iowa
458995	Chemically Recyclable Glass/Carbon Fiber Composites for Wind Turbine Blades	Iowa State University	Chemically recyclable glass-fiber thermoset composites will be developed for wind turbine blades	$300,000	TPI, 3M, ADM

IOWA ENERGY CENTER LOANS
PROJECT REPORT

IOWA economic development

Applicant: **Accu Steel Inc**
Loan Request: $447,735.90 for a 5-year term
Recommendation: $193,000 for a 5-year term
Board Decision: August 11, 2022

ATTACHMENT E

Summary

Accu Steel Inc is an Iowa business that manufactures fabric covered buildings in Iowa. They intend to construct an R&D prototype building. Their application proposed to integrate 41 kW thin solar panels into the fabric roof and store excess energy in a battery. The R&D building would be used for research and demonstration for potential customers, including beef cattle producers. The total cost of the project is $596,981.20, some of which is related to construction of the building. The electric utility for this applicant is Raccoon Valley Electric Cooperative.

The Loan Committee recommendation is to loan the amount for the thin solar panels integrated into fabric for the building, not including costs associated with the battery and costs solely related to the building construction.

Funding Sources

Other Financing

Source	Form	Amount
Bank Loan	5-year loan	$200,000*

*The applicant will need to identify and secure the remainder of funding needed prior to disbursement of funds. Expected to be private equity or a larger bank loan.

Incentives

Name of Incentive	Source	Estimate
Federal Investment Tax Credit (ITC)	Federal	$71,755.11
USDA REAP Grant (not secured)	Federal	$47,109
	Total	$118,864.11

Program Purpose and Eligibility

The Energy Infrastructure Revolving Loan Program (EIRLP) requires projects to fulfill one of three criteria for eligibility. Accu Steel has indicated they meet two of the criteria.

- **Economic impact to the local community and state.** This project will develop a protype building which ultimately could be replicated and utilized by others in Iowa.
- **Creative or innovative approach to a need or problem.** The innovative approach of the project is solar panels built into fabric roof at a larger scale for livestock producers, which is a fairly new technology and approach.

Applicant: **Accu Steel Inc**
Loan Request: $447,735.90 for a 5-year term
Recommendation: $193,000 for a 5-year term
Board Decision: August 11, 2022

The EIRLP also requires applicants to fulfill one at least one of the program purposes provided in Iowa Code. The applicant selected energy infrastructure and innovative technologies as described above.

Collateral

An Irrevocable Letter of Credit (ILOC) is pledged by the applicant and is one of the preferred and eligible forms of collateral. IEC Loan funds will not be disbursed by IEDA until after collateral has been secured.

Project Timeline and Unique Conditions

Award Decision Date:	August 11, 2022
Unique Conditions:	1) Utility coordination/preliminary approval
	2) Solar sizing and production estimates
	3) Other financing secured
Installation:	Estimated by 10/01/2022

ATTACHMENT F

ACTION

REPORT
IOWA ENERGY CENTER BOARD
AUGUST 2022

From: IEDA Legal

Subject: Appointment to Loan Committee

Scott Stokes was appointed to the Board in July 2022 and is willing to fill a vacancy as a member of the five-person Loan Committee.

Proposed Motion: Appoint Scott Stokes to the Loan Committee through June 30, 2023.

Submitted By: Lisa Connell

ATTACHMENT G

ACTION

REPORT
IOWA ENERGY CENTER BOARD
August 2022

From:	Legal
Subject:	Proposed Administrative Rulemaking - Adopt amendments to 261 Iowa Administrative Code, Chapter 403

The purposes of the Iowa Energy Center are listed in Iowa Code section 15.120. The section was amended by 2022 Iowa Acts, Senate File 2325, to add the following purpose: "To support research and development of strategies for carbon management."

The rule amendments incorporate the additional purpose, change the number of board members required for a quorum from nine to seven, and clarify that meetings may be held electronically.

A Notice of Intended Action was published June 29, 2022. No public comments were received and no changes from the notice are proposed.

Proposed Motion:	**Adopt amendments to 261 Iowa Administrative Code, Chapter 403**

Submitted By:	Lisa Connell, Assistant Legal Counsel
Attachments:	Proposed Administrative Rules

ARC 6383C

ECONOMIC DEVELOPMENT AUTHORITY [261]

Notice of Intended Action

Proposing rulemaking related to the Iowa Energy Center and providing an opportunity for public comment

The Iowa Energy Center Board hereby proposes to amend Chapter 403, "Iowa Energy Center," Iowa Administrative Code.

Legal Authority for Rulemaking

This rulemaking is proposed under the authority provided in Iowa Code Section 15.120.

State or Federal Law Implemented

This rulemaking implements, in whole or in part, Iowa Code Section 15.120 as amended by 2022 Iowa Acts, Senate File 2325.

Purpose and Summary

The purposes of the Iowa Energy Center are listed in Iowa Code Section 15.120, which has been amended by 2022 Iowa Acts, Senate File 2325, to add the following purpose: "To support research and development of strategies for carbon management."

The proposed amendments incorporate the additional purpose, change the number of Board members required for a quorum from nine to seven, and clarify that Board meetings may be held electronically.

Fiscal Impact

This rulemaking has no fiscal impact to the State of Iowa.

Jobs Impact

After analysis and review of this rulemaking, no impact on jobs has been found.

Waivers

Any person who believes that the application of the discretionary provisions of this rulemaking would result in hardship or injustice to that person may petition the Board for a waiver of the discretionary provisions, if any, pursuant to 261—Chapter 199.

Public Comment

Any interested person may submit written or oral comments concerning this proposed rulemaking. Written or oral comments in response to this rulemaking must be received by the Authority no later than 4:30 p.m. on July 19, 2022. Comments should be directed to:

Lisa Connell
Iowa Economic Development Authority
1963 Bell Avenue, Suite 200
Des Moines, Iowa 50315
Phone: 515.348.6163
Email: lisa.connell@iowaeda.com

Public Hearing

No public hearing is scheduled at this time. As provided in Iowa Code section 17A.4(1)"b," an oral presentation regarding this rule making may be demanded by 25 interested persons, a governmental subdivision, the Administrative Rules Review Committee, an agency, or an association having 25 or more members.

Review by Administrative Rules Review Committee

The Administrative Rules Review Committee, a bipartisan legislative committee which oversees rule making by executive branch agencies, may, on its own motion or on written request by any individual or group, review this rule making at its regular monthly meeting or at a special meeting. The Committee's meetings are open to the public, and interested persons may be heard as provided in Iowa Code section 17A.8(6).

The following rule-making actions are proposed:

ITEM 1. Amend rule 261—403.1(15) as follows:

261—403.1(15) Purpose. The Iowa energy center is established within the authority with the following purposes:

1. To expand workforce and career opportunities for workers in the energy sector to ensure that the state is able to attract and train professionals to meet the state's future energy needs.
2. To support technology-based development by encouraging public-private partnerships and innovative manufacturers to develop and bring to market new energy technologies.
3. 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. 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. 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. To encourage growth of the alternative fuel vehicle market, particularly for electric vehicles, and the infrastructure necessary to support the market.
7. To support efforts to modernize the electric grid infrastructure of the state to support increased capacity and new technologies.
8. To support research and development of strategies for carbon management.

ITEM 2. Amend subrule 403.3(3) as follows:

403.3(3) *Quorum and voting requirements.* ~~A quorum of the board requires nine~~ Seven or more members of the board constitute a quorum, and any board action requires an affirmative vote by a majority of the members present.

ITEM 3. Amend paragraph **403.3(5)"a"** as follows:

a. Meetings of the board are held at the call of the chairperson or when two members of the board request a meeting. The board generally meets quarterly at the authority's offices or by electronic means. By notice of the regularly published meeting agendas, the board and its committees may hold regular or special meetings at other locations within the state. Meeting agendas are available on the authority's Internet site.