

How Will the Implementation of a Utility-Source Solar Panel Farm Impact the Community It Will Proximate?



Missouri State FFA Convention

April 17, 2024

Silex FFA Chapter- MO0203

64 Hwy UU Silex, MO 63377

(573) 384-5227

McKenna Claborn, James Cockrell,

Hayley Gruenewald, Braden Havlik, Claire Kinion

List course(s) in which instruction occurred including the number of students involved in the instruction of the issue:

Agricultural Communications (6 students): Course standards clearly contain coursework for students to acquire research-gathering skills and the skills necessary to analyze an agricultural issue, as well as developed written materials, practice oral presentation skills, and learn how to use technology for effective group communication.

Agricultural Leadership (7 students): Course standards clearly contain coursework on premier leadership in which students are able to acquire the skills necessary to create a positive impact within their communities.

Ag Power, Structures and Construction (12 students): Course standards clearly contain coursework on demonstrating understanding of basic electrical concepts such as voltage, current, resistance, and power. Additionally, students describe renewable energy technologies relevant to agriculture, such as solar photovoltaic (PV) systems, wind turbines, and bioenergy systems.

Why Is The Issue Important Now? On December 15th, 2023, Cordelio Power and Amazon both announced that these companies have developed plans for developing 289-MW solar power projects within Lincoln County, MO and the surrounding area by 2026 (Khalid, 2024). Local farmers and agriculturally-related organizations do not feel the plan for implementing these solar panel farms is being properly communicated, leaving them in the dark about their property rights and conflicting with their land availability goals (Engemann, 2023). The legal acquisition of land for solar panels could help communities across Lincoln County, Missouri achieve ways that utility-scale solar energy may be integrated into the rural community, reducing the potential costs for energy and increasing permit-based revenue (Milhollin, 2023).

What Is The Nature Of The Issue? Many local farmers' are being approached about the leasing of their land to utility-scale solar energy companies, but communities that will be impacted by the implementation of these solar farms may thrive economically and utility-wise from their installation. Some property owners are opposed to the installation of the solar panels because of the potential for the government to waste tax-credited dollars to these solar companies, some of which are foreign (Casetext, 2023). Additionally, new land uses, including the advent of new businesses and industries, often stir up “not-in-my-backyard” (NIMBY) sentiments (Ernst, 2023). Local businesses are in favor of the utility-scale solar energy project because they see the positive impact the solar farms have had in surrounding communities in the form of outside revenue, permit fee revenue and additional jobs (Warren County, 2020).

Who Is Involved In The Issue?

Agricultural Producers: Ag producers work with solar developers to locate panels to coexist with their agricultural enterprise. Annual solar energy payments provide financial stability to producers (Weise, 2020).

Agricultural Industry: The agricultural industry is being criticized for accounting for 11% of all greenhouse gas emissions and is evaluating ways to reduce its carbon footprint (EPA, 2022).

Local Citizens: Neighbors are impacted by solar panels due to size, industrial look, the impact of property values, lighting, and shadow flickering (Clark, 2022).

County Government: Local decision-makers are best to balance the concerns of private property owners, citizens, and evaluate economic growth in rural areas (EPA, 2024).

The State of Missouri: State level decision-makers are best to balance Missouri's transition to renewable energy, while protecting critical agriculturally-productive land (Owen, 2023).

Environmental Community: Environmental studies have shown that utility-scale solar developments may be harmful to the environment in the construction process and via disposal of panels (Atasu, 2021).

Electric Industry Enterprises: American and foreign-owned electric enterprises have made it a top priority to reduce or totally eliminate carbon emissions via green energy sources (Morabith, 2022).

How Can The Issue Be Defined?

This forum focuses on an “Environmental Issue” as listed in the Focusing on Agricultural Issues instructional materials. The issue is defined as the voluntary implementation of utility-source solar panel farms through the conversion of productive agricultural acres. The forum addresses the tensions between local decision makers and the impact of those decisions on the local economies, landowners, and neighboring citizens. This forum also discusses “Agricultural Technology” and “Agricultural Policy” by highlighting emissions, the transition to renewable energy, and opposing viewpoints on private property rights, as well as the impact of solar panels on the environment.

What is the Historical Background of the Issue?

- 1791: The 5th Amendment to the United States Constitution states no person shall "be deprived of life, liberty, or property without due process of law (Const. Amend. V).
- 1926: Missouri adopted local zoning laws to allow cities and counties to make decisions concerning zoning, land use, health and safety (Wells, 1926).
- 1958: Charles D. Keeling conducted the first reliable measurement of atmospheric carbon dioxide, which is known as the Keeling Curve (Monroe, 2021).
- 1983: The first industrial-scale photovoltaic solar power plant in the nation was constructed on the Carrizo Plain in San Luis Obispo County, CA (Landgate, 2023).
- 2017: The largest utility solar farm to date was established in Nixa, MO (Schmitt, 2017).
- 2022: Missouri passes an act authorizing a sales tax exemption for utility scale solar photovoltaic energy system projects greater than twenty megawatts (Norberg, 2022).
- 2023: Cordelio Power and Amazon both announced that these companies have developed plans for developing 289-MW solar power projects within Lincoln County, MO and the surrounding area by 2026 (Khalid, 2024).

What Caused The Issue? In 2021, President Biden has set an ambitious U.S. goal of achieving a carbon pollution-free power sector by 2035 and net zero emissions economy by no later than 2050 (White House, 2021). In 2022, Ameren Missouri laid out a plan to reach net-zero carbon emissions by 2045 (Morabith, 2022). The electric utility company says it's a goal to balance energy needs while working toward a reliable and resilient power grid that is affordable. Since that time, agricultural advocacy groups have been opposed to the conversion, citing concerns of property right infringement and lack of clarity on maintenance responsibility (Missouri Farm Bureau, 2022). The issue became real for Lincoln County, Missouri when major corporations, like Cordelio Power and Amazon, announced that they have developed plans for developing utility solar power projects within Lincoln County, MO and the surrounding area by 2026 (Khalid, 2024).

What Are The Risks?

Risks of Action (Converting Productive Farmland to Solar Panel Farms): Solar panels' infringe upon neighboring property rights, home values, and detract from the landscape (Ernst, 2023). Solar panels and the chemicals they contain can negatively impact the environment, soil, ecology, biodiversity and farmland futurity (Atasu, 2021).

Risks of Inaction (Maintaining Farmland without Conversion): There is an economic opportunity cost; by maintaining farmland without exploring alternative uses such as solar energy production, landowners may forego potential revenue streams and economic opportunities (Norberg, 2022). There are missed opportunities to capitalize on incentives, grants, or favorable regulatory frameworks supporting renewable energy development (Norberg, 2022).

What Are The Benefits?

Benefits of Action (Transitioning Productive Farmland to Solar Panel Farms): There are diversified income streams; generating revenue from solar energy production diversifies the landowner's income streams. This can provide a stable source of income, particularly during periods of agricultural market volatility (Weise, 2020). Renewable energy development decreases reliance on fossil fuels, conserves natural resources, and protects ecosystems (EPA, 2024).

Benefits of Inaction (Maintaining Farmland without Conversion): In terms of food security, utilizing farmland for agricultural production helps to ensure food security by maintaining local food supply chains and supporting domestic food production (Missouri Farm Bureau, 2022). Preserving farmland helps to maintain soil fertility, biodiversity, and natural landscapes, contributing to ecosystem health and resilience (Atasu, 2021).

Is There Strong Disagreement On The Issue?

Yes. A contentious debate is raging in the Lincoln County area as this issue is extremely complex and can be very divisive, as it can challenge personal views on economics, politics, farm practices, technology, and regulations. Proponents to solar development argue local decision-makers are best to make decisions concerning private property, zoning and economic development (Engemann, 2023). Rural communities are facing a decline in revenue due to the loss of jobs, farms and lack of economic development (Herrold, 2021). While opponents of solar development argue that state level decision-makers are best suited to balance agricultural preparedness, environmental impacts, and moderate the transition to renewable energy (Owen, 2023). They believe that maintaining farmland for agricultural purposes preserves the cultural and historical heritage associated with farming communities (Ernst, 2023).

Bibliography

- Atasu, A. (2021, June). The Dark Side of Solar Power. Retrieved from <https://hbr.org/2021/06/the-dark-side-of-solar-power>
- Casetext. (2023). Missouri Revised Statutes Title X, Chapter 137, Section 137.100. Retrieved from <https://casetext.com/statute/missouri-revised-statutes/title-x-taxation-and-revenue/chapter-137-assessment-and-levy-of-property-taxes/assessment/section-137100-certain-property-exempt-from-taxes>
- Clark, H. (2021). Solar and Property Values [Fact Sheet]. Retrieved from https://cleanpower.org/wp-content/uploads/2021/08/Solar-and-Property-Values-Fact-Sheet_2.2.22.pdf
- Herrold, B. (2021). Census shows falling population trends in rural Missouri. Retrieved from https://agupdate.com/missourifarmertoday/news/state-and-regional/census-shows-falling-population-trends-in-rural-missouri/article_76791d44-3761-11ec-b293-af22eebd4c14.html
- Khalid, U. (2024). Cordelio Power acquires planned 150 MW solar farm in Missouri. Retrieved from <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/cordelio-power-acquires-planned-150-mw-solar-farm-in-missouri-61755489>
- Landgate. (2023). The Oldest Solar Farm in the US. Retrieved from [https://www.landgate.com/news/the-oldest-solar-farm-in-the-us#:~:text=The%20first%20industrial%2Dscale%20photovoltaic,Richfield%20oil%20company%20\(ARCO\)](https://www.landgate.com/news/the-oldest-solar-farm-in-the-us#:~:text=The%20first%20industrial%2Dscale%20photovoltaic,Richfield%20oil%20company%20(ARCO))
- Monroe, K. (2021, April 3). The History of the Keeling Curve. Retrieved from <https://keelingcurve.ucsd.edu/2013/04/03/the-history-of-the-keeling-curve/>
- Missouri Farm Bureau. (2023). Untangling the Green Web. Retrieved from <https://mofb.org/untangling-the-green-web/>
- Norberg, J. (2022). Bill Tracking System: Senate Bill 1234. Retrieved from https://www.senate.mo.gov/22info/BTS_Web/Bill.aspx?SessionType=R&BillID=71259846
- Owen, J. (2023, September 20). Seizing the clean energy opportunity: Missouri's time to shine. Retrieved from <https://missouriindependent.com/2023/09/20/seizing-the-clean-energy-opportunity-missouris-time-to-shine/>
- Schmitt, W. (2017, November 14). Nixa's massive new solar farm part of shift to responsible renewable power policy. Retrieved from <https://tinyurl.com/3uv2ppdm>
- The White House. (2021, April 22). Fact Sheet: President Biden sets 2030 greenhouse gas pollution reduction target aimed at creating good-paying union jobs and securing U.S. leadership on clean energy technologies. Retrieved from <https://tinyurl.com/5dk627y9>
- United States Environmental Protection Agency. (2022). Sources of Greenhouse Gas Emissions. Retrieved from <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>
- United States Environmental Protection Agency. (2024). Smart Growth: Small Towns and Rural Communities. Retrieved from <https://www.epa.gov/smartgrowth/smart-growth-small-towns-and-rural-communities>
- Wells, F. (1926). Renewable Energy on Agricultural Land. Retrieved from <https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=1196&context=ls>
- Warren County, Missouri. (2020). Solar Permit Regulations [PDF]. Retrieved from <https://warrencountymo.org/wp-content/uploads/2020/12/Solar-Permit-Regulations-FINAL.pdf>

WHEN	WHERE	TO WHOM	# PRESENT
February 22, 2024	Jefferson City, MO	MO Legislators	11
March 4, 2024	Silex, MO	Silex City Council Meeting	11
March 6, 2024	Silex, MO	Silex Board of Education	18
March 12, 2024	Silex, MO	Silex Banking Company and Agricultural Loaning Services Board of Directors	18
March 19, 2024	Troy, MO	Lincoln County Farm Bureau Board of Directors	20
March 20, 2024	Troy, MO	Lincoln County Elected Officials	24
March 20, 2024	Troy, MO	Cuivre River Electric Cooperative	15
April 1, 2024	Troy, MO	Ameren Corporation	24
April 2, 2024	Jefferson City, MO	MO Department of Agriculture	13
April 2, 2024	Columbia, MO	MFA Incorporated	6
April 2, 2024	Jeferson City, MO	MO Soybean Association/ MO Corn Association	8
April 3, 2024	Troy, MO	Lincoln County Fair Board	64
TOTAL:			232

Missouri FFA Week Career Exploration Day Legislative Forum

Date: February 22, 2024

Time: 1:15 pm

Missouri State Capitol, Jefferson City, MO

Number in Attendance: 11

Each year, our school sends students to the Missouri FFA Week Career Exploration Forum at the Capitol, where Governor Mike Parson drives his tractor to work. This day is an excellent opportunity to meet with legislators and discuss current legislation and other issues. Typically the day is focused around educational legislation, but our team had the opportunity to speak with several state representatives and senators about the potential impact of utility-source solar panel farms would have on the Lincoln County, MO community. We presented our forum to Senator Travis Fitzwater, Representative Chad Perkins, Legislative Staff Ben Riddler and Legislative Staff Scott Bell. Senator Fitzwater is Vice-Chair of the Commerce, Consumer Protection, Energy and the Environment Committee, member of the Economic Development and Tax Policy Committee and Chair of the Transportation, Infrastructure and Public Safety Committee. Representative Perkins is Chair of the Special Committee for Innovation and Technology and the Vice-Chair of the Conservation and Natural Resources Committee.



Lincoln County Courthouse Elected Officials Forum

Date: March 20, 2024

Time: 1:15 pm

Lincoln County Courthouse, Troy, MO

Number in Attendance: 24

The Lincoln County Elected Officials are passionate decision-makers that operate our Agri-Ready designated county and the county's number one industry: agriculture. The purpose of this forum is for elected officials and local law-makers to discuss the partnership opportunities available between the solar companies and community entities and how the tax revenue implications would impact our county. Some elected officials in attendance included: Sean O'Brien Sr., Presiding Commissioner, Kenny Shulte, County Clerk, Brenda Kay O'Brien, County Treasurer, Jessica Zumwalt, County Collector, Mike Wood, County Prosecuting Attorney, Kathy Krieg Hall, County Circuit Clerk, and Julie Rodgers, County Economic Development Director. Topics discussed included tax advantages and disadvantages, community outreach, insurance liabilities and location selection.



Jessica Zumwalt is at Lincoln County Collectors Office.

4d · Troy, MO · 🌐

Enjoyed listening to the Silex FFA Ag issues contest team. This team is designed to research a specific issue that impacts our community and present on the subject they have chosen. This group of young men and women have really done their research. Thank you all again for coming and presenting to us today. Best of luck at contest! Sean Michael O'Brien thank you for all you do for the youth in our community.



To All,

Sean O'Brien, Silex FFA Advisor, has a group of students who are a part of the Ag Issues contest team. This team is designed to research a specific issue that impacts our community and present to influential community members. His students will be coming to the courthouse on Wednesday, March 20 at 1:15 pm to present to the Lincoln County elected officials and staff (anyone who is available). This presentation will take approximately 15 minutes. If enough people show up, we will do it upstairs in the courtroom. If possible, can you take 15 to 20 minutes of your day to assist these students with their contest.

Thank you,
Kenny

Kenneth Schulte
Lincoln County Clerk
Election Authority
201 Main Street, Suite 102
Troy, Mo 63379
636-462-7956

kschulte@lincolncountymoclerk.gov
www.lincolncountymoclerk.gov

Cuivre River Electric Cooperative

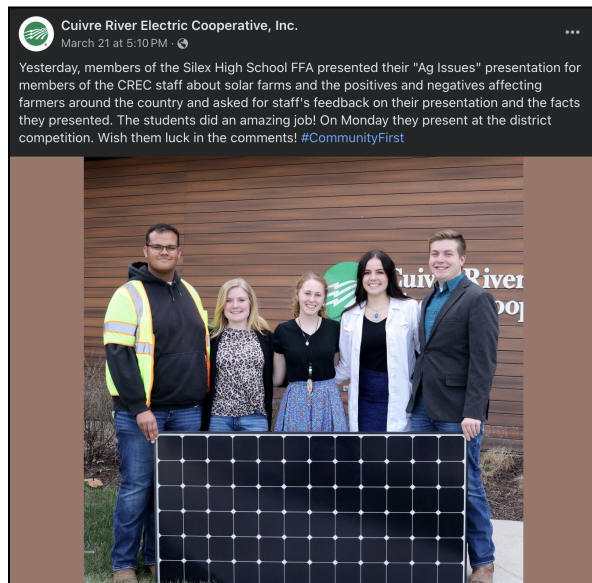
Date: March 20, 2024

Time: 2:30 pm

Cuivre River Electric Cooperative Headquarters, Troy, MO

Number in Attendance: 15

Cuivre River Electric Cooperative, Inc., a Touchstone Energy Cooperative, is Missouri's largest electric distribution cooperative, serving more than 70,000 individual, family and business members in Lincoln, Montgomery, Pike, St. Charles and Warren counties. Some of the Management Team members in attendance included: Doug Tracy, President & CEO, Chris Ryan, Vice President of Member Engagement and Technology, Keith Stone, Vice President of Economic Development & Corporate Services, Mary Wilson, Vice President of Strategic Communications, Gabe Twellman, Member Services Representative, and Neal Harrell, Green Power Services Representative. Topics discussed included recycling costs of expired panels, solar efficiency, extreme weather damage and overall energy output.



Lincoln County Farm Bureau Federation Board of Directors

Date: March 19, 2024

Time: 6:00 pm

Lincoln County Farm Bureau Conference Room, Troy, MO

Number in Attendance: 20

The Lincoln County Farm Bureau Board of Directors is a local organization under the umbrella of the grassroots Missouri Farm Bureau and American Farm Bureau Federation, aiming to advocate for farmers, the rural way of life and all Missourians. The purpose of this forum is for the elite agricultural leaders, business owners, Ag Educators and farmers to gain insight on the issue and seek feedback from those who support and promote Lincoln County agriculture as a whole. Some of the Federation's Board of Directors includes Jason Vandivort, President, Andrea Kientzy, Vice President, Brandelyn Twellman, Secretary, Brenda Kay O'Brien, Treasurer. Topics discussed included the Solar Eclipse effects, water usage amounts, century farm status and foreign ownership of agricultural land.



Sean O'Brien
Silex FFA Chapter
64 Hwy UU
Silex, MO 63377

Silex FFA Ag Issues Team,

Thank you to Claire Kinion, Hayley Gruenewald, McKenna Claborn, James Cockrell and Braden Havlik for joining us at Wednesday's Lincoln County Farm Bureau Board Meeting. The issue that you presented about solar farms is something that is hitting close to home in our current times and you opened everyone's eyes to both sides of the argument. In fact, we discussed the issue for another 20 minutes after you left.

We wish your team much success in your future contests.

Respectfully,

Brenda Kay O'Brien, Treasurer
Lincoln County Farm Bureau

Missouri Department of Agriculture Forum

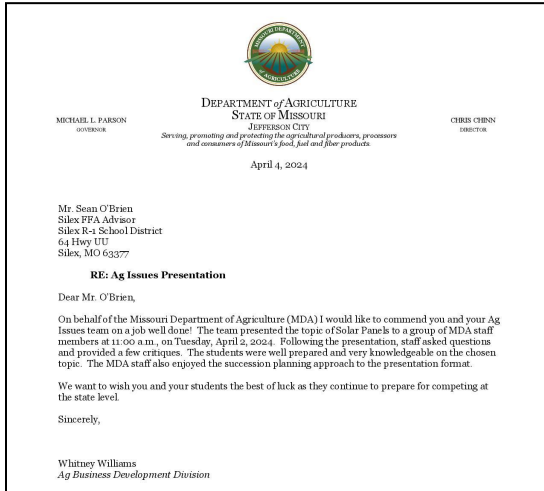
Date: April 2, 2024

Time: 11:00 am

MO Dept. of Agriculture, Jefferson City, MO

Number in Attendance: 13

The Missouri Department of Agriculture is dedicated to the promotion and protection of the state's agricultural industry. The purpose of this forum was to seek feedback from those who support and promote Missouri agriculture as a whole. Attendees included Whitney Williams, Missouri Grown Grants Coordinator, Delaney Schmidt, Dallas Breshears, Carley Travis, Jacob Stoehr, Kate Haarmann and Dylan Whitlock. Topics discussed included current property rights and legislative actions being taken.



Ameren Corporation

Date: April 1, 2024

Time: 8:00 am

Ameren Corporation Regional Office, Troy, MO

Number in Attendance: 24

Ameren Missouri's mission is to power the quality of life for their 1.2 million electric customers in eastern and central Missouri. In 2022, Ameren Missouri laid out a plan to reach net-zero carbon emissions by 2045. Some of the Management Team members in attendance included: Caleb Harris, Electricity Manager and Darren Williams, Renewable Energy Coordinator. Topics discussed included the reliability issues of solar panels, nuclear energy comparisons and Ameren's plans to reach net-zero carbon emissions.



Silex FFA,

Thank you for having your students present at our facility on April 1st. We think that the topic that you have chosen concerning solar panels as a renewable energy source is definitely going to become more popular in the energy production game and you all clearly have your research down. Thank you for presenting both sides of this issue.

Thank you,

Caleb Harris
Electricity Manager- Troy Regional Office
Ameren Corporation



Missouri Soybean Association & Missouri Corn Growers Association Forum

Date: April 2, 2024

Time: 3:30 pm

MO Soybean Association Headquarters, Jefferson City, MO

Number in Attendance: 8

The MO Soybean Association and MO Corn Growers Association combined forces for a forum that allowed for these commodity merchandising organizations to share their insights on the challenges and decisions that row crop farmers are being forced to deal with on a day-to-day basis. Attendees included Baylee Asbury, Director of Outreach and Education, and Casey Waser, Chief Operation Officer and Sr. Policy Director for the MO Soybean Association, and Hilary Black, Associate Director of Communications for the Missouri Corn Merchandising Council. Topics discussed included the cost-benefit analysis decisions of farm operations and legislation that is blocking the use of eminent domain within Missouri for utilities.



Lincoln County Fair Board Forum

Date: April 3, 2024

Time: 7:00 pm

Lincoln County Fairgrounds, Troy, MO

Number in Attendance: 64

The Lincoln County Fair Board is composed of the forefront agricultural leadership within our community, some of which are portrayed within the Silex Ag Issues team presentation. Some of the demographics of this group include 11 century farm status families, 5 farmers that have been approached by solar panel companies to rent their property, and 2 farming families that are currently leasing their farmland to a solar panel company. This allowed for a variety of viewpoints and some of the topics discussed were the financial incentives of solar panel farm implementation and productive acres' sustainability and futurity.



LINCOLN COUNTY FAIR P.O. Box 317 Troy, Missouri 63379 Lincoln County Fair, Inc. Meeting Agenda April 3, 2024		
Call To Order		
Roll Call		
Public Address	Silex FFA Ag Issues Presentation	
Minutes approved from previous meeting		
Motion:	Second:	All in favor
Treasurer Report		
Motion:	Second:	All in favor
Secretary Correspondence		
Hall Report		
Committee Reports		
Livestock CVI Requirement – Cindy or Bill		
Old Business		
Port-a-potties for fair? – Eric		
Sponsorship levels – Eric		Greg Agers might have one?
New Business		
Other Business		
Adjourn		
Motion:	Second:	All in favor: /

Silex Banking Company & Agricultural Loaning Services Board of Directors

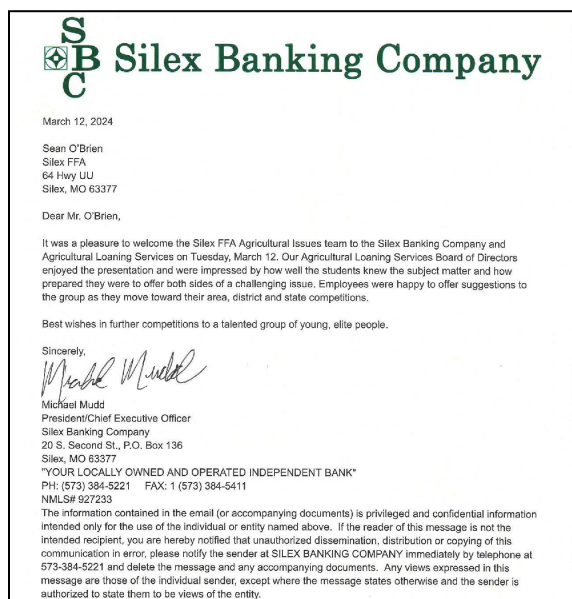
Date: March 12, 2024

Time: 3:00 pm

Silex Banking Company & Agricultural Loaning Services, Silex, MO

Number in Attendance: 18

The purpose of the Silex Banking Company & Agricultural Loaning Services Board of Directors is to oversee the operations of the company and provide guidance on the trends within the agricultural financial markets, including agricultural businesses, technology and enterprises seeking financial services within the community. The Board of Directors is composed of 8 community members, business leaders and Silex Banking Company personnel. Some board members include Betty Zuroweste, Chief Operation Officer, Michael Mudd, President & CEO, Connie Willer, Loan Officer & EVP, Tim Schroer, Retired Building Superintendent, Lonnie Shepard, Retired Veterinarian, Kathryn Synor, Retired Lawyer and David Stanek, Retired Business Owner. Additionally, 10 bank loan officers, office managers and Michael Mudd, Bank President & CEO, were present for the forum. Several business owners came up to us after the event and validated their level of interest in the project and were thankful their viewpoint was represented.



MFA Incorporated

Date: April 2, 2024

Time: 1:00 pm

MFA Headquarters, Columbia, MO

Number in Attendance: 6

MFA Incorporated is a cooperative built by farmers for farmers, serving its more than 45,000 farmer members. As part of its many ventures, they offer financial services and crop insurance to farmers, which elevates their level of expertise when dealing with the financial side of the issue at hand. Attendees included Jason Mott, Corporate Credit Manager, Dallas Kleiboeker, Retail Credit and Membership Manager, Scott Morfeld, Talent and Development Manager and Steve Fairchild, Sr. Director of Communications and Executive Editor. Topics discussed included financial decisions farmers are facing, the liabilities associated with these foreign-owned solar companies, land value impact.

