STATE OF IOWA
BEFORE THE IOWA UTILITIES COMMISSION

IN RE:	)	DOCKET NO. GCU-2025-0004
RIVER CITY ENERGY, LLC	)	

DIRECT TESTIMONY OF

TERRY KUCERA

ON BEHALF OF

THE ENVIRONMENTAL LAW & POLICY CENTER

October 27, 2025

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. Please state your name and address.

A. My name is Terry Kucera. My business address is 1412 210th St, Sergeant Bluff, IA 51054.

Q. Please summarize your experience related to farming and agricultural land use. experience?

A. I have been involved with agriculture my whole life beginning with 4-H projects at 10 years old. I have over 50 years of experience in farming and farmland management. I am originally from Traer, Iowa in Tama County. My family has had a family farm in Traer since 1929. From 1975 to 1985, I farmed about 300 acres in Tama County. When I farmed the land, we grew corn, soybeans, oats, alfalfa in rotation, and we had a 150 cow-calf operation. After I moved, I have maintained and managed that farmland. Currently in Tama County, I own and manage about 1000 acres where a tenant farms the land.

I have expanded my farmland management to six states through the United States. Over the course of my management career, I have managed over 75,000 acres of farmland across the Midwest and the country. In that capacity, I have experience with the farm economy, farm tenants, and land management. I have managed ground from conventional agriculture to organic farming. I have worked with small family-owned operations as well as larger agricultural operations. I care deeply about maintaining the agricultural economy and farmland today and into the future.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of the Environmental Law & Policy Center.

Q. Have you testified before the Iowa Utilities Commission previously?

A. No.

Q. Have you testified or provided comments in similar state regulatory proceedings?

A. I have not testified in state regulatory proceedings, but I did provide comments at a 2023 public meeting of the Tama County Board of Supervisors related to a proposed solar development.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address issues related to agricultural land being used for solar energy generation. In particular, I address how all farmers capture sunlight for production and how farmland is regularly used for energy generation; how solar can be an efficient way for farmland to generate energy; how using farmland for solar generation can be compatible with other agricultural and conservation uses; how solar generation can provide community and economic benefits; and how allowing solar generation is consistent with respecting property rights.

II. ENERGY GENERATION ON FARMLAND

Q. Please summarize your experience related to the use of farmland for solar generation.

A. In 2023, I signed easements with TED Renewables to allow them to develop solar energy generation on about 960 acres of land that I own in Tama County. The developer was willing to discuss the type of vegetation including agrovoltaics and land management

practices related to the solar arrays. However, the project never got off the ground because the county changed its ordinance to prohibit it.

In the past, I have discussed projects with other solar companies related to placing solar on land that I managed, but those projects ultimately did not move forward. From this experience, I know that there is a difference between solar developers on how they approach land use and land management.

Q. Do you have experience with farmland being used for other forms of energy?

A. Yes. A significant amount of farming in Iowa is about harvesting the sun and ultimately converting it into energy. Corn can be turned into ethanol, a form of energy for the transportation sector. In 2024, 59% of the corn raised in Iowa was used to produce ethanol.[1] A significant amount of the corn raised on land I own or manage has been used for ethanol production.

Q. Do you see a difference in using farmland for energy generation in the form of ethanol compared to solar?

A. No. We use a significant amount of our agricultural land for energy production today in the form of ethanol. Using some of that same agricultural land to produce energy through solar is no different from a land use perspective. In both cases, the land is being used to produce energy. In addition, utilizing solar allows us to capture more carbon because there is a permanent crop or groundcover on the soil below the panels.

[1] Ethanol Production, Corn Usage, Prices, and Exports, *available at* https://www.iowafarmbureau.com/Article/Ethanol-Production-Corn-Usage-Prices-and-Exports (last visited October 7, 2025).

Q. Do you see a benefit to using some farmland previously used to produce ethanol to produce solar energy?

A. Yes. Using some farmland that has been devoted to energy production in the form of ethanol and converting that to solar is consistent with an all of the above approach to energy generation. This will diversify Iowa's energy production. Iowa farmers have been fueling the world for decades. Adding solar generation to Iowa's mix will help Iowa continue to allow Iowa farmers to fuel the world no matter what the future holds.

In addition, on a per acre basis, solar generation is significantly more efficient as a transportation fuel than ethanol is. I have seen other testimony that has made this point, and I am aware of other studies that have also concluded that land used for solar provides more value and efficiency than land used for ethanol.[2] One solar company published its own calculation with an Iowa specific comparison:

> Each year, one acre of corn produces 551 gallons of ethanol, which is the equivalent of 386 gallons of gas. Using the average miles per gallon of a US automobile, this equates to 9,691 miles driven per acre of corn per year. Whereas in Iowa for example, an acre of land with solar panels produces 198,870kWh each year. A typical EV drives approximately 3.6 miles per kWh. So, each year, an acre of solar panels produces enough energy for an EV to drive 710,250 miles. This is over 70 times the distance the same acre producing corn could provide."[3]

[2] RPU-2025-0001, Cross Rebuttal Testimony of Steve Guyer (filed June 19, 2025); Matthewson, Paul and Nicholas Bosch, *Ethanol vs. Solar*: *Land Use Comparison*, Clean Wisconsin (Jan. 19, 2023) *available at* www.cleanwisconsin.org/wp-content/uploads/2023/02/Corn-Ethanol-Vs.-Solar-Analysis-V3-12-compressed.pdf (last visited October17, 2025) ("Looking at land-use efficiency, corn-derived ethanol used to power internal combustion engines requires about 85x (range: 63-197x) as much land to power the same number of transportation miles as solar PV powering electric vehicles."); Sturchio, Matthew, et al, *Ecologically informed solar enables a sustainable energy transition in US croplands*, PNAS (April 21, 2025) *available at* https://www.pnas.org/doi/10.1073/pnas.2501605122 (last visited October17, 2025) ("[S]olar PV generates the same amount of energy as corn ethanol in just 3.2% of the land-use footprint.")

[3] 1 Acre Land: Corn-Grown Ethanol vs Solar Panels – Staten Solar, *available at* https://statensolar.com/2022/06/10/1-acre-land-corn-grown-ethanol-vs-solar-panels (last accessed June 17, 2025).

Even if ethanol became twice as efficient as it is today from a miles per acre perspective, it still would generate only a fraction of the energy produced by solar generation. This greater efficiency means that land can be used for solar generation and providing fuel diversification benefits while still leaving plenty of land for use in biofuels.

Q. Do you see other benefits of solar generation compared to ethanol?

Yes. Solar generation produces electricity which is more versatile than ethanol. Electricity from solar generation can be used as a transportation fuel like ethanol, but it can also be used to power homes and businesses in a way that ethanol cannot.

III. FARMLAND AND FOOD PRODUCTION

Q. Have you heard criticisms of solar generation that it takes farmland out of food production?

A. Yes.

Q. Do you agree with that criticism?

A. No. As I discussed above, a significant amount of Iowa farmland has been used for energy production for decades. Adding solar generation changes the type of energy but not the fact that Iowa farmland has been used to produce energy. Given the efficiency of solar compared to ethanol, the same amount of transportation energy could be produced on fewer acres with solar allowing more acres to be used for food production or other agricultural purposes. In addition, solar generation is compatible with using the land to generate food.

Q. Please explain how solar is compatible with food production.

A. There are multiple ways to include food production with solar generation. Using land for solar and agriculture simultaneously is known as agrivoltaics. For example, if solar arrays are installed at the right height and distance, it is possible to use the land for solar generation and raising livestock that could graze between the rows of the arrays. This would allow for livestock production and jobs associated with that production. According to the American Solar Grazing Association, there were almost 130,000 acres of solar grazing across 30 states in 2024.[4]

Most of the grazing today has been with smaller animals like sheep, but I believe with the right type of design and management, it is possible to have cattle grazing with solar. That would require adjusting the height of the panels, but that is possible if a developer is willing to work with a farmer on that.

Another option is to grow crops between solar arrays. There are a range of crops that can be grown between rows of solar panels. There are folks at Iowa State that have been studying which crops grow best including vegetables.[5] In my opinion, in Iowa today, soybeans, oats, and hay would be very easy to implement with the right size equipment.

[4] American Solar Grazing Association, United States Solar Grazing 2024 Census, at 6 *available at* https://solargrazing.org/wp-content/uploads/2025/06/ASGA-CensusReport2024.pdf.
[5] Agrivoltaics at Iowa State," Iowa State University, *available at* https://agrivoltaics.research.iastate.edu/ (last accessed October17, 2025).

Q. If land between solar arrays is not used for food production, are there other beneficial land management practices?

A. Yes. There are projects that grow pollinator habitat between the solar panels. This provides the land with an opportunity to rest and restore soil quality. At the end of the useful life of the solar panels, the soil health will be better than what was on the farm when the project started.

Q. Do you see other community benefits from solar generation?

A. Projects like this can generate significant tax revenue for local governments. I have worked in rural communities around the Midwest. Many of these communities could use additional tax revenue. Renewable energy projects are an important new source of that revenue.

A solar project also provides job benefits. There is construction work to build the project, and if the project chooses to graze livestock or grow vegetables between the panels, there are additional agricultural jobs.

There is a benefit to the property owner. While the direct payment is of benefit, it can be more important to property owners who farm. As a farm manager I see how many farmers today struggle to keep up and a bad year or economic uncertainty can be really hard on a family farm operation. A family farm that chooses to lease a portion of their land for solar diversifies its revenue and provides some stability and certainty. It's a benefit for some farm families to have this type of option.

Q. How does allowing solar generation fit with your understanding of property rights?

A. I believe folks should have the right to choose how to use their property. If someone wants to choose to lease their land for a solar project, they should be able to do so. There can be reasonable protections for neighbors such as setbacks and screening requirements, but those protections should not infringe on the right of a property owner to choose what to do with their land.

Nobody would think that the county should be able to stop someone from putting land in permanent grass if it was their land and they wanted to. The only difference between that situation and solar generation is that there are poles in the ground. The property owner should have a right to decide how to use their land.

Q. What do you think the appropriate role of local government is in addressing solar land use?

A. There is an important role for local government in addressing land management. For example, if a community wants to encourage agrovoltaics, particularly since not all developers are equally open to working with landowners, it would be appropriate to address that. But local government goes too far when it bans solar altogether.

IV. CONCLUSION

Q. What is your conclusion?

A. As someone with decades of experience farming and managing farmland, I believe that solar generation is compatible with agricultural land and farming, and in fact, it is beneficial to farming. Farming is about harvesting the energy of the sun, and solar generation is an efficient way to do that. A significant portion of the agricultural

economy is about producing energy, and solar is consistent with that. Solar also provides other benefits to farmers and the local community including combining solar and food production agrovoltaics. If it is important to the community to preserve food production with solar projects, local ordinances can appropriately address agrovoltaics and related land management practices. Local ordinances should not impose an outright ban on solar generation.

Q. Does this conclude your testimony

A. Yes.

AFFIDAVIT OF TERRY KUCERA

STATE OF SOUTH DAKOTA)
) ss.
COUNTY OF UNION)

I, Terry Kucera, being duly sworn on oath, state that I am the same Terry Kucera identified in the testimony being filed with this affidavit, that I have caused the testimony to be prepared and am familiar with its contents, and that the testimony is true and correct to the best of my knowledge and belief as of the date of this affidavit.

/s/ Terry Kucera
Terry Kucera

STATE OF SOUTH DAKOTA)
) ss.
COUNTY OF UNION)

Subscribed and sworn before me this 23 day of October 2025.

/s/ Linda D. Jefferson
Notary Public
My commission expires 5/18/29