Preliminary Staff Report

Considerations For The Permitting Of Utility-Scale Solar Energy Systems In Unincorporated Woodbury County, Iowa

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Summary of the Debate

The question in this report is whether utility-scale solar energy systems are appropriate or not in the Agricultural Preservation (AP) Zoning District. To determine compatibility with AP, the Zoning Commission has been tasked to consider the following by the Board of Supervisors on August 8, 2023:

- A conditional use permit for AP "C" with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- A maximum height of no more than 20' for panel structures.
- Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered "AP."
- Utility solar can be no more than 2% of all AP "agricultural preservation," preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

Subsequently, the Supervisors revised their direction to include the following on September 26, 2023:

- A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.

Since receipt of direction from the Board of Supervisors, the Commission has performed significant research, conducted four public hearings and one work session to work toward a recommendation. The Commission has been mindful of the consequentiality of this debate and plans to continue their deliberative work in crafting a concrete recommendation to the Board.

Report Summary

The purpose of this report is to offer a guide regarding how to address the potential permitting of utility-scale solar energy systems in the Agricultural Preservation (AP) Zoning District as the Woodbury County Zoning Commission works toward a recommendation to the Board of Supervisors. This document is designed to explore literature expanding the country on a host of issues. Included within is a breakdown of the public proceedings including meeting transcripts with public comments as well as a staff analysis.

Three potential routes are offered including: 1) focus on the comprehensive plan including the revision of the future land use map for potential renewable energy areas; 2) retain the current policy and revise the conditional use permit process for the General Industrial (GI) Zoning District; 3) establish a utility-scale solar energy systems overlay district.

It is concluded that the utility-scale solar energy debate would be best served by a direct focus on public input during the final stages of the adoption process of the Woodbury County Comprehensive Plan 2040. In particular, input should be considered concerning possible changes to the future land use map for either additional industrial areas or locations acceptable for a utility-scale solar overlay district. As part of the comprehensive plan process, the establishment of a renewable energy policy focused on either industrial expansion or the validation of an overlay district over agricultural land would be a reasonable step for a long-term stable land use policy. Without the comprehensive plan debate, it is the recommendation of staff to adopt Concept #2 which is the retention of the current policy with a revision to the conditional use permit process in the GI Zoning District. Other related issues that could be considered are policies related to the permitting of utility-scale battery systems.

Introduction

The Woodbury County Zoning Ordinance presently has provisions for conditional use permit applications for utility-scale solar energy systems in the General Industrial (GI) Zoning District. This debate is not about establishing solar provisions for the first time, it is about whether or not the Agricultural Preservation (AP) Zoning District is an appropriate zone or not for utility-scale solar. As this is an intricate discussion about the future landscape of Woodbury County with numerous variables for consideration, this consequential debate continues to be examined by extrapolating information from the public, consulting literature, and looking at methods other jurisdictions have employed.

This report attempts to serve as a repository of information collected through the course of this investigation. It has become apparent that the debate of renewable energies is consequential and can have a direct impact on the populace. This document is comprised of sections pertaining to a consultation of literature, the meeting history of the Zoning Commission, the summarization of the debate; a staff analysis, and proposed concepts.

Review of Literature

The purpose of this analysis is to consult a series of sources on topics associated with utility-scale solar systems and land use. The information presented herein is not exhaustive but attempts to shed light on this multifaceted debate.

In recent years, the federal government has placed emphasis on the goal to promote renewable energies in hopes of reducing consumption of fossil fuels to tackle concerns of global climate change. The Biden Administration has set a goal for 100% carbon pollution-free electricity by 2035 (FACT SHEET, 2021). With that federal initiative in place, developers, utility companies, and interested landowners share a common interest to bring solar power to fruition which in-turn thrusts local communities into a position to determine whether or not they are ready for these renewable energy mediums including industrial utility-solar, utility-wind, utility-batteries, etc.

Under the principle of federalism, local jurisdictions, in particular counties - for the purpose of this analysis, regulate their land use through comprehensive plans including future land use maps, zoning ordinances,

floodplain ordinances, and subdivision ordinances. In Iowa, counties are empowered to exert zoning and land use authority through Iowa Code Chapter 335. Thus, the county plays a significant role in evaluating the merits of initiatives promoted by the other governmental partners.

Utility-scale solar energy systems appears to be one of the renewable answers if coal-fired plants around the country are phased out sometime in the future. In an article prepared by Ford (2023) in Reuters, there is a federal initiative to modify and extend the clean energy tax credit for developers of areas impacted by the closure of coal mines or coal-fired plants. The author asserts that "the Energy Community Tax Credit Bonus program provides 10% extra tax credits to solar and storage projects, on top of the 30% investment tax credits (ITCs) or $26/MWh production tax credits (PTCs) available to all renewable energy projects through the inflation act" (Ford, 2023, p. 1). The author asserts that "coal plant closures have accelerated, offering significant opportunity for developers. Around 12 GW of coal plant capacity was retired in 2022 and a further 40 GW of closures are expected by 2029, according to EIA data" (Ford, 2023, p. 1). Additionally, Ford (2023) states that "coal plant sites can offer solar developers a large land area to maximise economies of scale, as well as transport and utility infrastructure" (Ford, 2023, p. 1)

As reported in the news, it is apparent with the initiatives promoting alternatives to coal, other sources of energy are sought to address the electrical needs of communities. Jaeger (2023) in an article for the World Resources Institute states that "phasing out coal power is the most important step the world can take to curb climate change" (p. 1). The author discusses ten countries that have worked toward coal reduction over an eight-year period. The leading county was Greece as they reduced coal production from 51% to 10% between 2014 to 2022 (Jaeger, 2023). The United States was in ninth place on the list which reduced its coal power capacity from 39% to 19% during the same time-frame (Jaeger, 2023). As recent as December 3, 2023, John Kerry, Special Presidential Envoy for Climate, participated in the UN Climate Change Conference COP28 where he announced that the United States is joining the Powering Past Coal Alliance. As reported by Borenstein of Fortune magazine and the Associated Press, Kerry stated "we will be working to accelerate unabated coal phase-out across the world, building stronger economies and more resilient communities" (Borenstein and Associated Press, 2023, p. 1). He also said. "the first step is to stop making the problem worse: stop building new unabated coal power plants" (Borenstein and Associated Press, 2023, p. 1).

In an article prepared by Kristian (2021) of the Grant Plains Institute, there are various challenges for solar development. It is stated that "some solar development proposals are met with concern or suspicion as a new land use, and approval processes are frequently slow. Solar developments sometimes face moratoriums while local decisions makers try to sort out conflicting claims of harm. They frequently face a more restrictive set of development regulations than other kinds of development" (Kristian, 2021, p. 3). Using figures from the Energy Industries Association (*Land Use*, 2024) suggesting that it takes "10 acres to produce one megawatt (MW) of electricity," Kristian (2021) offers a study of the "total percentage of county land used for solar electrical generation" (p. 4). The author suggests that "of all 2,870 counties in the contiguous US, only one-third have recorded principal-use solar installations of at least one MW. Of counties with solar installations, most (93.5 percent) have less than 0.5 percent of their total land area used for solar development" (Kristian, 2021, p. 5). Kristian (2021) asserts that within their analysis "solar development has not existed in conflict with cultivated agriculture land use at a large enough scale to risk county-level economic agriculture bases" (p. 7). The bottom line of this study is that "for no region does the average percentage of both existing and queued solar in a county surpass 0.6 percent of the county's total land" (Kristian, 2021, p. 8).

The vast majority of unincorporated Woodbury County is made up of land designed in the Agricultural Preservation (AP) Zoning District which includes about 476,000 acres including areas already developed. The areas that comprise the General Industrial (GI) Zoning District, predominately south of the Sioux Gateway Airport and west of Interstate 29, include about 11,000 acres (Woodbury County Assessor's Data, 2023). The inherent purpose of AP Zoning District is to "encourage the continued role of agriculture as the primary economic sector in the unincorporated areas of Woodbury County, thereby preserving its rural character. Land uses that are compatible with agriculture and farming are allowed..." (Woodbury County Zoning Ordinance, p. 24). The purpose and intent of the GI Zoning District is to enable the development of heavy commercial and industrial

activities. Thus, it was determined with the adoption of the zoning ordinance in 2008 that electrical energy generation is an industrial use, thereby restricting placement to the industrial areas for the purpose of protecting farm ground.

It is noteworthy to point out that there are numerous uses including commercial and industrial activities that are either allowed outright or allowed for consideration through the conditional use permit process in the AP Zoning District. These uses include: vehicle repair; machine and welding shops; research and development laboratories; ethanol fuel distilling; aggregate crushing and screening; borrow pits for earth materials; gravel and stone quarries; fuel and lubricant distributors; sanitary landfills; waste composting; detention facilities; halfway houses for non-penal residents; airports and heliports; rail lines; telecommunication towers; sewage treatment plants; utility substations; sewage lagoons; water tanks; and various others. However, the distinguishing factor between these uses and utility-solar may rest in the total number of acres required (Woodbury County Zoning Ordinance).

In an article by Daniels and Wagner (2022), it is stated that agricultural areas are beneficial sites for developers because the open space areas place distance between property owners for conflict minimization (p. 1). The authors (2022) offer the following as quoted from YSG Solar (2022), "'developers' generally want land located within two miles of an electrical substation and within 1,000 feet of three-phase power (alternating current)..." (Daniels and Wagner, 2022, p. 2; as quoted in YSG Solar, 2022). In terms of capacity, according to the Solar Energy Industries Association (SEIA), a "five-megawatt (MW) facility requires between 5 and 10 acres per megawatt of electricity generated" (as quoted in Daniels and Wagner, 2022, p. 2).

Gross (2020) of the Brookings Institution, suggests that "wind and solar generation require at least 10 times as much land per unit of power produced than coal- or natural gas-fired power plants including land disturbed to produce and transport the fossil fuels" (p. 1). In terms of megawatts produced in comparison, coal fire plants can be in the 500 to 1000 MW capacity range. In an article offered by the Nuclear Regulatory Commission, entitled "What is a Megawatt, "a 1,000 MW coal energy plant "may average 750 MW of production over the course of a year…" (*What is a Megawatt?,* 2012, p. 1*).*

The authors assert that these systems are growing rapidly as the costs to produce them declines, however, there are also cons to the systems. Daniels and Wagner (2022) state that "utility-scale solar plants can cover up to hundreds of acres and can interfere with scenic views. Removing agricultural land from production can hurt local farm economies and leasing land for utility-scale solar can drive up land rents and prices" (Daniels and Wagner, 2022, p. 2). Daniels and Wagner (2022) also discuss concerns for the restoration of agricultural land after decommissioning. However, they reference that some landowners have continued limited agricultural practices along with the solar panels limited to sheep, pollinator space, and the raising of vegetables (Daniels and Wagner, 2022). Lastly, Daniels and Wagner (2022) state the importance of comprehensive plans, zoning ordinances, and subdivision regulations. They make it clear that the local jurisdictions have the authority to decide whether industrial solar is appropriate or not on farmland. In their study of 125 local governments nationwide, "11 counties and three municipalities banned solar plants from farmland" (Daniels and Wagner, 2022, p. 4). Their data suggests that 30 counties use the conditional use permit process and 32 use the special exception process.

Research about the appropriateness of utility-scale solar assets on agricultural land includes concerns about the impact to land values. Gaur and Lang (2020) from the University of Rhode Island, analyze the potential effects on nearby property values. The purpose is to discover whether solar installations over one megawatt in Massachusetts and Rhode Island impact residential property values within one mile. In analyzing over 400,000 land transactions within three miles of a solar site in the two states, their results indicate that "houses within one mile depreciate 1.7% following construction of a solar array, which translates into an annual willingness to pay $279" (Gaur and Lang, 2020, p. 2). The authors further conclude that "the global benefits of solar energy in terms of abated carbon emissions are outweighed by the local disamenities" (Gaur and Lang, 2020, p. 2).

Coffey (2019), in a study prepared for the American Planning Association, discusses utility-scale solar energy facilities and their impact on land use. He suggests that while the clean energy created can be a positive, the impact of utility solar can be felt at the local level. Coffee (2019) asserts that "applicants often say that a particular project will 'only' take up some small percentage of agricultural, forestry, or other land-use category –

but the impact of these uses extends beyond simply replacing an existing (or future) land use" (p. 10). He cautions communities by stating if the permitting is not done right, "these uses can change the character of an area, altering future communities for generations" (Coffey, 2019, p. 10).

The author emphasizes that local officials need to root their decisions in the community's comprehensive plan for the purpose of carefully analyzing the ramifications of the individual project and its association with the proposed area it could impact. Coffee (2019) asserts the following: "A solar facility located by itself in a rural area, close to major transmission lines, not prominently visible from public rights-of-way or adjacent properties, and not located in growth areas, on prime farmland, or near cultural, historic, or recreational sites may be an acceptable use with a beneficial impact on the community" (Coffey, 2019, p. 10). Furthermore, Coffee states that "properly evaluating and, to the extent possible, mitigating the impacts of these facilities by carefully controlling their location, scale, size, and other site-specific impacts is key to ensuring that utility-scale solar facilities can help meet broader sustainability goals without compromising a community's vision and land-use future" (p. 11)

In a study by Al-Hamoodah, Koppa, et al (2018), an investigation is conducted examining the impact of utility solar installations on nearby property values using a geospatial analysis and a survey of assessors. The purpose is to determine whether utility-solar is an amenity or disamenity. The analysis included 956 solar projects from 2016 across the county using data from the U.S. Energy Information Administration as well as 400 surveys of local assessors. The assessors were asked about utility-solar's impact on home prices. It was discovered that there was minimal impact. Additionally, it was reported that the assessors indicated positive impacts of the solar panels that were placed in unappealing areas (Al-Hamoodah, Koppa, et al., 2018).

In an article by Elmallah et al. (2023), a study is presented analyzing the impact of large-scale solar on residential home prices in six states. Using over 1.8 million home transitions near solar assets, the authors address two questions: "(1) what effect do LSPVPs (large-scale photovoltaic projects) have on home prices and (2) does the effect of LSPVP on home prices differ based on the prior land use on which LSPVPs are located, LSPVP size, or a home's urbanicity" (Elmallah et al., 2023, p. 1)? The authors "find that homes within 0.5 mi of a LSPVP experience an average home price reduction of 1.5% compared to homes 2-4 mi away; statistically significant effects are not measurable over 1 mi from a LSPVP" (Elmallah et al., 2023, p. 1).

> Elmallah et al. (2023) state that our measures have two implications for policymakers: (1) measures that ameliorate possible negative impacts of LSPVP development, including compensation for neighbors, vegetative shading, and land use co-location are relevant especially to rural, large, or agricultural LSPVPs, and (2) place- and project-specific assessments of LSPVP development and policy practices are needed to understand the heterogeneous impacts of LSPVPs. (p. 1)

Abashidze (2022) examines the sales of agricultural land around 451 solar farms in North Carolina. The author finds "no direct negative or positive spillover effect of a solar farm construction on nearby agricultural land values" (Abashidze, 2022, p. 19). However, it is learned that solar farms "may create a positive option-value for landowners that is capitalized into land prices" (Abashidze, 2022, p. 19). In particular, the author finds that "agricultural land that is also located near transmission infrastructure could increase in value. This latter result is also of note given the difficulty in siting transmission lines" (Abashidze, 2022, p. 19).

The author suggests agricultural land near transmission lines after the installation of a nearby solar may bring positive value (Abashidze, 2022). However, the author does clarify that the results are confined to the study and many not necessarily be applied to other areas. Abashidze (2002) does point out that "concerns have been expressed that as solar displaces traditional agricultural production in a region, local supply chains could suffer and lead to a negative cycle in which more farmers exit the industry and supply chains further weaken" (p. 19). It is emphasized that this would need to happen on a large scale and they cannot "empirically evaluate these concerns" (Abashidze, 2022, p. 19).

It is without a doubt that utility-scale solar is widely growing but not entirely embraced. Uebelhor, Hintz et al. (2021) offer an analysis of community reactions to solar developments in the Great Lakes region (Indiana, Michigan, Minnesota, and Wisconsin) using a content analysis of local newspaper articles gauging public sediment. The issues discovered were ranked based on the frequency of mentions. The results suggest that utility-solar on farm ground was generally positive. Yet, there were numerous articles featuring opposition to projects.

"Residents opposed to siting, solar projects on farmland often mentioned how a significant amount of local farmland was being taken out of production, which was a concern for the local economy, the reduction in locally produced food, aesthetics, and community values" (Uebelhor, Hintz et al., 2021, p. 10). The community members also offered concerns about land and soil degradation (Uebelhor, Hintz et al., 2021). The authors discuss differences between the four states as Michigan and Indiana have local control over solar siting while Minnesota and Wisconsin retain the authority in state hands. Under both scenarios, the Uebelhor, Hintz et al., 2021 suggest that it is key to ensure active community involvement in the utility-solar siting process to mitigate concerns.

In an article in Michigan's nonpartisan, Michigan Bridge, Erin Hamilton, a mushroom grower, launched a petition to ban utility-scale solar on agricultural land. Hamilton was quoted stated that "our goal with this initiative is specifically to protect and preserve farmland for long term agricultural use" (House, 2023, p. 3). This push is for the proposed Michigan Agricultural Preservation Act which is a ballot measure to oppose the use of large tracts of land for renewable energy purposes. The objections cited in Michigan include "fears of declining property values, loss of productive farmland, and local environmental concerns over the materials used in solar panels" (House, 2023, p. 4). Hamilton pushed for this statewide ban because of actions in her local community in Livingston County's Marion Township where their solar ordinance was revised thereby "shrinking areas allowed for solar development from thousands of acres to 170 amid opposition from farmland solar opponents…" (House, 2023, p. 4). The statewide ballot measure was withdrawn due to the vagueness of the language. Hamilton signaled that she planned to visit the efforts but there has not been an updated petition since.

In an article in the Harvard Business Review, Atasu, Duran, & Van Waqssenhove (2021) present concerns about the increased speed of solar replacement which in turn generates significant amounts of waste thereby placing pressure on the limited resources of local communities for resource cleanup. The authors argue that with the vast growth and innovative changes in solar technology, there will be decisions made for early replacement thus adding solar waste to the communities at rates higher than imagined. It is pointed out that developers may find it economically viable to replace panels earlier than expected. Atasu et al (2021) assert that recycling is inadequate in numerous communities and the increased number of disposed panels can lead to problems including who is responsible for the cleanup costs (Duran and Van Wassenhove, 2021)?

Casey (2023) offers an article about agrivoltaics as a tool for a transition to renewable energies. It is stated that the "mindful cooperation between farming and energy poses a threat to the status quo fueling climate change and is facing a sure of opposition, but the emerging field of agrivoltaics could help neutralize the critics and break down barriers to solar development" (Casey, 2023, p. 2). Casey (2023) discusses the importance of rural solar as a source of income for farmers and a support mechanism for supporting the agricultural industry. Opposition to rural solar is also discussed including the formation of groups on social media sites such as Facebook. Casey (2023) asserts that "these groups are larded with false claims about climate change, including claims that climate change is a hoax, and that solar panels can leach cadmium, a carcinogen, into the environment" (p. 4). Casey (2023) acknowledges that "opponents of farm-located solar have argued that utility-scale arrays are not an appropriate use of farmland" (p. 5). The author also cites a group, "Citizens for Responsible Solar" which has the message that "industrial-scale solar is not agriculture; it is a power plant" (Casey, 2023, p. 5).

The claim is made by Casey (2023) that the institution of solar panels helps improve the soils beneath as they can "revert to a natural state, enabling the potential for a transition to regenerative farming" (p. 6.). Hence, Casey (2023) claims this is "consistent with the Conservation Reserve Program, which pays farmers for taking sensitive land out of production and planting species that restore environmental health" (p. 6). The author concludes the article by discussing advantages of agrivoltaics, regenerative agriculture, carbon sequestration, and federal support.

There are a number of policy advocates for utility-scale solar including the Iowa Environmental Council who provide materials such as model solar ordinances to local governments. Guyer and Snell offer a model to facilitate utility-scale solar installations. This covers a range of issues including the application process, general requirements, operation and maintenance, and discontinuation and decommissioning of utility-solar systems. The ordinance uses a conditional use permit application process in zoning districts other than residential.

The Center of Rural Affairs also provides materials to local governments to assist with finding a balanced approach to regulation. The Center has provided their Iowa Solar Citing Resource Guide: A Roadmap for Counties which includes information about state and local benefits, major provisions that should be contained within solar ordinances such as the approval process and application, setbacks, sitting standards, operations and maintenance planning, infrastructure and road use agreements, decommissioning, and other considerations. This guide recommends that property line setbacks should not exceed 50 feet. It also suggests that setbacks from occupied residences should be within 100 to 200 feet.

As part of the Center of Rural Affairs' literature, Kolbeck-Urlacher (2022) offers a guide for the decommissioning of utility-solar systems. The analysis presented includes information for understanding the scope of the solar project including the awareness of the end-of-life options. These options include the extension of the performance period where reuse, refurbishment, and repowering standards are considered. Information about full decommissioning with recycling and disposal options of the panels are discussed. Components of the decommissioning plan are presented including how to address the estimation of costs. Decommissioning cost examples are presented along with final assurance mechanisms. Kolbeck-Urlacher (2022) offers several recommendations including:

- Require project developers to submit a decommissioning plan that defines the obligations of the project developer to remove the solar array and restore the land when the project is retired.
- Require the project developer to notify the county of its intent to stop using the facility once it has been determined the system will be retired…
- Ensure that decommission plans include expected timelines for completion of tasks…
- Include a provision that the project owner is responsible for the costs of decommissioning ensuring the county and landowners do not bear these costs.
- Work with developers to ensure decommissioning cost estimates are made by a third-party professional who can provide a location and project specific cost estimate, and plan for these cost estimates to be reviewed every 5 to 10 years to accommodate changes.
- Encourage recycling or repurposing of solar components rather than disposal in a landfill.

(Kolbeck-Urlacher, 2022, p. 6)

Additionally, in a 2023 Center for Rural Affairs publication, Kolbeck-Urlacher offers a report to give policy makers an option for utility-solar and agriculture to co-exist. The author asserts that solar can coexist with different crop types such as "vegetables and berries, utilizing livestock grazing for managing vegetation, beekeeping, and planting native vegetation and pollinator habitat" (Kolbeck-Urlacher, 2023, p. 4). It is asserted that agrivoltaics offers economic benefits such as "new revenue streams for farmers, increased pollinators, wildlife habitat, enhanced soil health, reduced erosion, and carbon storage" (Kolbeck-Urlacher, 2023, p. 4).

The Center for Rural Affairs also authors a fact sheet advocating for the solar grazing. They present a planning process for developers to have a grazing management procedure in place that sets goals, sets the livestock species and population, determines site conditions, and establishes a rotational grazing and vegetation management plan for the site (Making the Case for Solar Grazing, p. 2).

The research suggests there are a number of ways to permit utility-scale solar energy systems. These include allowed uses through the building permit process alone, conditional use permit, special use, rezone, etc. Typically, local jurisdictions have established frameworks within their ordinances to address permitting. In the Solar@Scale: A Local Government Guidebook for Improving Large-Scale Solar Development Outcomes (2023), the concept of special-purpose districts is addressed. The purpose of these districts are to "address the unique characteristics of a specific area or to promote unified large-scale development" (Improving, 2023, p. 78).

"Local officials may map these districts to specific properties at the time of adoption, or they may hold off on mapping until they approve an owner's request for a rezoning to the special-purpose district" (Improving, 2023, p. 78). If the district is not initially mapped, it can be construed as a floating zone or an overlay district (Improving, 2023). The authors suggest that "local officials can use floating zones to ensure the highest level of scrutiny for large-scale solar development proposals" (Improving, 2023, p. 78). Furthermore, it is asserted that there are downsides of a specific mapped location. This includes changes to the developers' plans. Additionally,

there could be factors beyond the local government's control "such as the available capacity on distribution or transmission lines and the costs associated with interconnection, can impede efforts to steer solar projects to target locations" (Improving, 2023, p. 78).

The guidebook also addresses the establishment of development standards including dimensional standards, use permissions by district, site conditions, environmental performance, and decommissioning. Additionally, procedural standards are analyzed including the use of pre-application meetings, application materials, and permitting fees. As a whole, the guidebook offers a wide-scope of considerations that are imperative for local officials to appreciate.

In an article prepared for the Michigan State University Extension, Reilly (2023) asserts that "overlay zoning districts is a valid tool in some conditions. But be careful not to overuse it when more traditional zoning techniques can do the job" (p. 1). Reilly (2023) describes the overlay as an "additional zoning district that is laid over the top of two or more zoning districts – usually to introduce an additional standard(s) or regulation(s) along some feature" (p. 1). The standards could include "building setbacks, density standards, lot sizes, impervious surface reduction, vegetation requirements, and building floor height minimums (Reilly, 2023, p. 3). Reilly (2023) offers the following example:

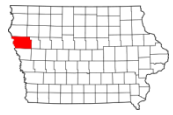
> An overlay district along the entire length of a river, that flows through several different zoning districts, may require a vegetation buffer and larger setback from the riverbank. The overlay district text in the zoning ordinance is where the larger setback and requirement for the vegetation buffer is written. The alternative would be to add those two regulations into each underlying zoning district – often making it necessary to have the same text in the zoning ordinance several times, once for each zoning district the river flows though. (Reilly, 2023, p. 1)

Reilly (2023) cautions "if a proposed overlay district is only on top of one underlying zoning district, then creating an overlay district may not be the best approach" (p. 3). Reilly suggests that the ordinance would be more standardized to just add the proposed regulations to the underlying zoning district. However, if the proposed overlay is meant to change a use, then it would be appropriate to establish the overlay (Reilly, 2023).

As Reilly (2003) points out the merits of overlay districts, in terms of utility-scale solar energy systems, there must be a unit-of-analysis or some particular standards that establish an area within a community as suitable or not suitable for the overlay. The determination of those standards can be based on a number of factors not limited to soil quality and separation distances from other land uses.

Several counties in Iowa have adopted ordinances to address utility-scale solar. It is apparent there is not a one-size-fits-all solution for the permitting of such systems. It appears that some of the counties do tend to have a some pathway for the permitting of utility-scale solar in agricultural districts. Some counties have their Board of Supervisors consider the permits while others employ the Board of Adjustment. The following table includes fifteen counties in Iowa that have some mechanism in place to address utility-solar.

County	Location	Population (2023)	Status	Permitting Body	Permit Type	Zoning District
Adair		7,439	In effect	Board of Supervisors	Board of Supervisors Permitting	No designation
Clayton		16,716	In effect	Board of Adjustment	Special Exception Use Permit	Consumer Scale referenced in R-1, C-1, & A-1 Districts
Clinton		45,662	In effect	Board of Adjustment	Special Exception Permit	A-1, AR-1, C-1, C-2, M-1, M-2

Dubuque		100,949	In effect	Board of Adjustment	Special Use Permit	A-1 (Agricultural District); Permitted in M-1 (Light Industrial) and M-2 (Heavy Industrial)
Johnson		159,445	In effect	Board of Adjustment	Conditional Use Permit	Agricultural District
Linn		236,020	In effect	Board of Supervisors	Rezone to Overlay	Renewable Energy Overlay Zoning District
Louisa		10,672	Draft Proposal	Board of Adjustment	(Ordinance Status unknown) Special Exception Permit	Special Use Exception in the A-1 (Agricultural District); B-1 (Business District); I-1 (Industrial District)
Mills		14,310	In effect	Board of Adjustment	Conditional Use Permit	AG (Agricultural Zoning District); AR (Agricultural/Residential Zoning District)
Monona		8,604	In effect	Board of Adjustment	Special Use Permit	A-1; A-2 – Agricultural Districts
Muscatine		43,382	In effect	Board of Adjustment	Special Use Permit	A-1 (Agricultural District); Permitted use in I-1 & I-2 (Light and Heavy Industrial)
Polk		510,929	In effect	Board of Adjustment	Conditional Use Permit	AG (Agricultural Zoning District); LI (Limited Industrial Zoning District); HI (Heavy Industrial Zoning District)
Ringgold		4,522	In effect	Board of Supervisors	Construction Permit	No designation
Scott		177,501	In effect	Board of Supervisors	Rezone Procedure	US-F Floating District
Tama		16,946	Under Consideration	Solar Access Regulatory Board / Board of Supervisors	Solar Access Easement	No designation; capped by 25 Megawatts (MW).
Woodbury		105,941	In effect	Board of Adjustment	Conditional Use Permit	General Industrial (G1)

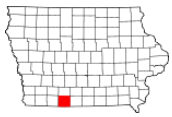
As noted, each county is distinct and has their own specific reasons for why they chose their respective mechanism to permit utility-solar project. Each county offers information that can be helpful to the consideration of a utility-solar policy in Woodbury County. In terms of setbacks or separation distances, the Center for Rural Affairs in their Iowa Solar Siting Resource Guide: A Roadmap for Counties offer the following recommendations:

- Property line setbacks should not exceed 50 feet; setbacks from occupied residences should stay within a range of 100 to 200 feet. (p. 11)
- Counties should include waiver provisions allowing for the county to waive the mandated setback distance with the consent of the participating landowner and adjacent property owner. (p. 11)
- No setbacks should be required if a property line is shared by two participating landowners. (p. 11)

The following table includes ordinance excerpts of the setbacks or separation distances used by the sample counties. It appears that many have chosen to follow the setback standards for their controlling zoning districts. However, there are some counties such as Adair, Ringgold, and Scott that have implemented setbacks of 1,000 feet from occupied residences. It is imperative to note that several metrics beyond the Center for Rural Affairs recommendation can be employed addressing: Occupied Residences; Occupied and Unoccupied Structures; Public Rights-of-Way; Public Intersections; Airports; Cemeteries; Public Conservation Areas, etc.

<table>
<tr><th>County</th><th>Location</th><th></th></tr>
<tr><td>Adair</td><td>  </td><td><table><tr><th>Protected Area</th><th>Setback Requirement</th></tr><tr><td>Occupied Residence</td><td>1,000 feet from occupied residence</td></tr><tr><td>Any non-participating parcel</td><td>250 feet from property line</td></tr><tr><td>Public road right of way</td><td>50 feet from road right of way</td></tr><tr><td>Public road intersections</td><td>Radius of 150 feet from the center of the intersection</td></tr><tr><td>Public Airports</td><td>5 miles from property line</td></tr></table></td></tr>
<tr><td>Clayton</td><td>  </td><td>a) Setback. Setbacks for all structures (including solar arrays) must adhere to the minimum principal use setback standards for the zoning district where the project is located; greater setbacks may be recommended absent a solar access agreement.</td></tr>
<tr><td>Clinton</td><td>  </td><td>Site and Structure Requirements
1. Setback. Setbacks for all structures (including solar arrays) must adhere to the minimum principal setback standards for the zoning district where the project is located; greater setbacks may be required by the Board of Adjustment.</td></tr>
<tr><td>Dubuque</td><td>  </td><td>Setbacks. Setbacks for all structures (including solar arrays) shall be the same as what is required for residences in the A-1 Agricultural District unless the Board of Adjustment finds that less is warranted. All structures shall observe listed setbacks in the M-1 and M-2 Districts. No setbacks are required where a property line is shared by two participating landowners. Mandated setback distances may be waived with the consent of participating landowners and adjacent property owners.</td></tr>
<tr><td>Johnson</td><td>  </td><td>1. Setback Standards. All structures, including solar arrays, shall adhere to the primary structure setbacks for the district where the system is located.</td></tr>
</table>

Linn		(5) *Site and structure requirements.* a. *Setback.* Setbacks for all structures (including solar arrays) must adhere to the minimum principal setback standards for the zoning district where the project is located in addition to dwelling and stream corridor setbacks 1. Solar panels, structures, and electrical equipment, excluding fences and power lines for interconnection, shall be kept a minimum of three hundred (300) feet from dwellings, unless the property owner waives the setback. Waiver must be in writing and recorded. 2. Solar panels, structures, and electrical equipment, excluding fences and power lines for interconnection, shall be kept a minimum of one hundred and twenty (120) feet from the centerline of all stream corridors and open ditches containing perennial flow throughout the majority of the growing season.
Louisa		2) *Setbacks.* a. The front yard setbacks shall be a minimum of fifty (50) feet from the edge of the right of way which form the outside perimeter of a SGES or SFES project area and one hundred (100) feet from a residence that is a part of the SGES or SFES project area. The Board of Adjustment may grant an exception to the setback requirement if the proposed or existing buffer is sufficient to screen the project from view of adjoining property or public rights-of-way, if the owners of the adjoining properties agree in writing to waive these setback requirements b. In the case of a SGES or SFES to be built on more than one parcel and parcels are abutting, a zero (0) side or rear setback shall be permitted to the property line in common with the abutting parcel(s). c. Solar panels shall be least three hundred (300) feet from a residence that is not part of the SGES or SFES project area. The Board of Adjustment may grant an exception to the setback requirement if the proposed or existing buffer is sufficient to screen the project from view of adjoining property or public rights-of-way, if the owners of the adjoining properties agree in writing to waive these setback requirements d. Solar panels shall be eighty (80) feet from the State Right of Way and sixty (60) feet from County Right of Way.
Mills		(2) Setbacks. The front yard setbacks shall be a minimum of fifty (50) feet from the edge of the right-of-way to the closest solar panel of a SESUS project and three hundred (300) feet from a residence that is not a part of the SESUS area. If a SESUS is to be built on more than one parcel and the parcels are abutting, a zero (0) foot side or rear setback shall be permitted to the property line in common with the abutting participating parcel(s).
Monona		No setbacks reported or reverts to controlling zoning district.
Muscatine		e. **Setbacks.** Setbacks for all structures (including solar arrays) shall be the same as what is required for residences in the A-1 Agricultural District unless the Board of Adjustment finds that less is warranted. All structures shall observe listed setbacks in the I-1 and I-2 Districts. No setbacks are required where a property line is shared by two participating landowners. Mandated setback distances may be waived with the consent of participating landowners and adjacent property owners.
Polk		No setbacks reported or reverts to controlling zoning district.

<table>
<tr>
<td>Ringgold</td>
<td>  </td>
<td>
1. Setbacks. All US-SES and any upgrades to existing solar energy systems shall observe the following setbacks, to be measured from the edge of the solar panels and equipment (not underground facilities such as cable or fencing):
<table>
<tr><th>Protected Area</th><th>Setback Requirement</th></tr>
<tr><td>Occupied Residence</td><td>1,000 feet from occupied residence</td></tr>
<tr><td>Any non-participating parcel</td><td>250 feet from property line</td></tr>
<tr><td>Public road right of way</td><td>75 feet from road right of way for paved roads
50 feet from road right of way for gravel roads</td></tr>
<tr><td>Public road intersections</td><td>Radius of 150 feet from the center of the intersection</td></tr>
<tr><td>Public Airports</td><td>5 miles from property line</td></tr>
</table>
<table>
<tr><td>Occupied Structure</td><td>300 feet from occupied structure</td></tr>
<tr><td>Any non-participating parcel</td><td>100 feet from property line to solar panels</td></tr>
<tr><td>Public road right of way</td><td>75 feet from road right of way for paved roads
50 feet from right of way for gravel roads</td></tr>
<tr><td>Recreational Areas</td><td>A view shed analysis needs to be completed and the setback should be consistent with said study.</td></tr>
</table>
</td>
</tr>
<tr>
<td>Scott</td>
<td>  </td>
<td>
3. Setbacks: Setbacks for all structures (including the solar arrays themselves) must adhere to the minimum principal setback standards for the zoning district where the project is located; greater setbacks may be recommended based on the application.

a. All buildings, accessory buildings, and other infrastructure shall be located the following distances from the nearest boundary of each zoning district:

A-P: 500 feet
A-G: 500 feet
R-1: 1,000 feet
R-2: 1,000 feet
CAD-R: 1,000 feet
C-1: 100 feet
C-2: n/a
CAD-PVC: 100 feet
I: n/a
I-F: n/a
SW-F: n/a

b. All buildings, accessory buildings, and other infrastructure shall be located 1,000 feet from any residential dwelling unit not within in the land area leased or owned by the applicant.

c. When a solar array is to be built on two or more parcels that are abutting, a zero (0) side or rear setback shall be permitted to the property line in common with the abutting parcels.
</td>
</tr>
<tr>
<td>Tama</td>
<td>  </td>
<td>Draft ordinance. Data not reported.</td>
</tr>
</table>

In terms of soil quality, in Iowa, the Corn Suitability Rating 2 (CSR2) is the present standard employed to assess farm ground. In an article prepared by the Iowa State University Extension and Outreach office by Miller and Burras (2015) "Corn Suitability Rating 2 remains an index to the inherent soil productivity of each kind of soil for row crop production. The index is scaled from 100, for the most productive soils, to 5 as the least productive" (Miller and Burns, 2015, p. 1). The CSR2 can be broken down into three tiers including high, medium, and low. A high tier CSR2 is construed as very productive soils with a rating of 83 and above. A medium tier includes a rating within the range of 65-82 and is considered to have productive soils "with some properties that limit yield to remain below the excellent ones" (Mandrini, 2023, p. 1). A low tier includes a rating below 65 to 5, again with some limited properties (Mandrini, 2023). Mandrini (2023) asserts that "the CSR2 was created to classify soils based on production capacity. Since yield is one of the main variables determining a farm's economic outcomes, CSR2 is also associated with economic variables like cropland values and rents" (p. 3).

The research also suggests that comprehensive planning is an appropriate step for introducing renewable energy to the community. The American Planning Association offers a guide in their Planning Advisory Service Memo Addendum (2019). The association offers the following criteria for comprehensive plan amendments:

- Identification of major electrical facility infrastructure (i.e. transmission lines, transfer stations, generation facilities, etc.)
- Identification of growth area boundaries around each city, town, or appropriate population center.
- Additional public review and comment opportunities for land-use applications within a growth area boundary within a specific distance from an identified growth area boundary, or within a specified distance from identified population centers (e.g., city or town limits)
- Recommended parameters for utility-scale soar facilities such as:
    - maximum acreage or density (e.g., not more than two facilities within a two-mile radius) to mitigate the impacts related to the scale of these facilities
    - maximum percentage usage (i.e., "under panel" or impervious surface) of assembled property to mitigate impacts to habitat, soil erosion, and stormwater runoff
    - location adjacent or close to existing electric transmission lines.
    - location outside of growth areas or town boundary or a specified distance from an identified growth boundary
    - location of brown fields or near existing industrial uses (but not within growth boundaries)
    - avoidance of or minimization of impact to prime farmland as defined by the USDA
    - Avoidance of or minimization of impact to the viewshed of any scenic, cultural, or recreational resources (i.e., large solar facilities may not be seen from surrounding points that are in line-of-sight with a resource location)
- Identification of generation conditions to mitigate negative effects, including the following:
    - Concept plan compliance
    - Buffers and screening (e.g., berms, vegetation, etc.)
    - Third-party plan review (for erosion and sediment controls, stormwater management, grading)
    - Setbacks
    - Landscaping maintenance
    - Decommission plan and security

(Specific Planning and Zoning Recommendations for Utility-Scale Solar, 2019, p. 1)

The American Planning Association (2019) also suggests that in addition to the comprehensive plan, the zoning ordinance should also be amended to define a thorough permitting process. The recommended contents include a pre-application meeting, application requirements, public notice standards, minimum development standards, coordination of local emergency services, decommissioning, site plan, building permit, site maintenance, signage, compliance, interconnection agreement, documentation and conditions, severability, infractions, property access, etc.

Meeting History of the Woodbury County Zoning Commission

The following table summarizes the Zoning Commission's interactions as they work to form a recommendation to the Board of Supervisors for the permitting of utility-scale solar energy systems in the unincorporated areas of Woodbury County. The table includes online hyperlinks (links) to the meeting agendas with backup information including public comments up to that point. Additionally, links to the approved meeting minutes as well as audio is provided. The subsequent pages also include comments made by the public at the hearings. The information provided is not intended to be a full or perfect transcript but to provide context of the debate. Links are also provided to the audio comments from each member of the public who chose to speak.

Date	Meeting Type / Action	Meeting Information	Meeting Attendance	Public Input
September 11, 2023	Public Hearing / Zoning Commission (Moville)	**Agenda Packet:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-09-11_packet_zoning_commission_34199.pdf **Comments:** Written comments included within agenda packet. **Minutes:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-09-11_minutes_zoning_commission_2192.pdf **Audio:** https://www.youtube.com/watch?v=XZQa-5kNgcQ	31+	14 • Greg Jochum • Brad Jochum • Tom Jochum • Eric Nelson • Ron Wood • Elizabeth Widman • Bob Fritzmeyer • Leo Jochum • Kim Alexander • Will Dougherty • Ann Johnston • Wally Kuntz • Supervisor Taylor • Will Dougherty
September 25, 2023	Public Hearing / Zoning Commission	**Agenda Packet:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-09-25_packet_zoning_commission_66298.pdf **Comments:** Written comments included within agenda packet. **Minutes:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-09-25_minutes_zoning_commission_9753.pdf **Audio:** https://www.youtube.com/watch?v=LJ-k9MCD8_8	25+	12 • Matt Countryman • Deb Harpenau • Wally Wagner • Jerrod Ulery • Kevin Alons • Rebekah • Moerer • Jesus Cendejas • Elizabeth Widman • Leo Jochum • Ann Johnston • Will Dougherty • Daniel Segura

October 16, 2023	Work Session / Zoning Commission	**Agenda Packet:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-10-16_agenda_zoning_commission_2395.pdf **Comments:** Written comments included within agenda packet. **Minutes:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-10-16_minutes_zoning_commission_3421.pdf **Audio:** https://www.youtube.com/watch?v=lJAj6Xh3cSU	15+	3 • Will Dougherty • Leo Jochum • Doyle Turner
October 23, 2023	Public Hearing / Zoning Commission	**Agenda Packet:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-10-23_packet_zoning_commission_6882.pdf **Comments:** Written comments included within agenda packet. **Minutes:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-10-23_minutes_zoning_commission_5233.pdf **Audio:** https://www.youtube.com/watch?v=qNpK3atf1k0&t=3s	14+	4 • Elizabeth Segura • Ann Johnston • Elizabeth Widman • Elizabeth Cindy Haase
November 27, 2023	Public Hearing / Zoning Commission	**Agenda Packet:** https://www.woodburycountyiowa.gov/files/committees/meetings/2023-11-27_packet_zoning_commission_49249.pdf **Comments:** Written comments included within agenda packet. **Minutes:** See Draft Minutes in the appendix. **Audio:** https://www.youtube.com/watch?v=Me_SPKOFaHM&t=11s	37+	13 • Bob Fritzmeyer • Kevin Alons • Robert Wilson • Doyle Turner • Christopher Widman • Elizabeth Widman • Tom Treharne • Roger Brink • Leo Jochum • Naomi Widman • Steve Corey • Greg Jochum • Rebekah Moerer

Public Hearings and Work Session(s)

As of January 12, 2024, five public hearings and one work session (October 16, 2023) have been held to learn whether utility-scale solar energy systems are appropriate or not in the Agricultural Preservation (AP) Zoning District.

The first public hearing was conducted at the Moville Area Community Center on September 11, 2023. There were over 31 members of the public present and 14 who offered comments. Three categories emerged from the hearing including those who were favorable, those who were opposed or not supportive, and those who were indifferent or undecided about the expansion of solar into ag land. There appears to be about seven (7) who spoke favorably, four (4) who were opposed or not supportive, and one who indicated to be undecided but interested in assessment.

A second public hearing was conducted in the basement of the Woodbury County Courthouse on September 25, 2023. There were over 25 members of the public present and 12 who offered comments. Again, the same categories emerged as those who are favorable in comparison to those who oppose or not supportive of the expansion of solar-utility scale energy systems on ag land. There were six (6) who spoke favorably while six (6) spoke in opposition.

The third public hearing was conducted in the basement of the Woodbury County Courthouse on October 23, 2023. There were over 14 members of the public present and four (4) who offered public comments. There were four (4) who spoke in opposition. The fourth public hearing was held at the same location on November 27, 2023 with over 37 members of the public present and thirteen (13) who offered public comments. There were six (6) who spoke favorably and six (6) who spoke in opposition.

The themes gleaned from the meetings cover a host of issues. Those who spoke in favor of the expansion of utility-scale solar discussed co-existence within the neighborhoods. Comments included techniques that could be used to mitigate any potential adverse impacts. It was suggested to develop an ordinance that establishes specific requirements and agreements so that the expectations would be clear. Those in favor offered concerns about the Corn Suitable Rating 2 (CSR) as a requirement due to the rainfall factor. Additionally, concerns were made about out of county ownership, solar as the future as part of climate change initiatives, and the potential phasing out of the area coal power plants. Furthermore, comments were made claiming that solar will positively benefit the soils, wildlife, add value to the county, and are important for the economic future.

Those who spoke in opposition referenced the purpose of preserving agricultural land in the Agricultural Preservation (AP) Zoning District. Comments included questions/statements about whether solar is an agricultural activity? It was asserted that solar is an industrial activity and should be placed on industrial or commercial land. Concerns were made about the solar industry being subsidized and the timeframe to which the panels would no longer function, thus generating concerns of disposal as well as questioning recyclability. Weather conditions were referenced as a detriment for the panels. Those opposed discussed the stewardship of land and questioned the short-term vs. long terms benefits and questioned how a conditional use or overlay would actually work. Concerns were also brought forth about the manufacturing of solar panels in foreign countries including alleged adverse working conditions for the workers. This debate has also included references to Constitutional rights and the use of the zoning districts to classify land.

It is important to point out that the Woodbury County Zoning Ordinance presently has provisions for conditional use permit applications for utility-scale solar energy systems in the General Industrial (GI) Zoning District. This debate is not about establishing solar provisions for the first time, it is about whether or not the Agricultural Preservation (AP) Zoning District is an appropriate zone or not for utility-scale solar. As this is an intricate discussion about the future landscape of Woodbury County with numerous variables for consideration, the comments from the public have been included in the subsequent pages of the report organized by each hearing date.

Public Hearing #1 (Moville) – September 11, 2023

On **September 11, 2023**, the Commission conducted the first public hearing at the Moville Area Community Center. Fourteen members of the public addressed the Commission on a range of issues in support and opposition to utility-scale solar on AG land. Below includes links to the audio and summaries and/or direct quote adaptions of the information shared by the public. The following is not intended to be a perfect transcript but is offered to provide context of the debate. The audio can be accessed on YouTube using the following direct link: https://www.youtube.com/watch?v=XZQa-5kNgcQ

The list of Zoning Commission meetings inclusive of the agendas, packets with backup materials, minutes, and videos (Audio) may be accessed at: https://www.woodburycountyiowa.gov/committees/zoning_commission/

Greg Jochum (Salix) (47:43 to 51:28) - https://youtu.be/XZQa-5kNgcQ?feature=shared&t=2863

- Using CSR2 as a scenario, in 2013, the State of Iowa went from Iowa State University, went from CSR1 which is Corn Suitability Rating, went from one to a two. I have a few farms that the corn suitability rating was a 47 which means on a scale that means 1 is bad 100 is good. So, it's below average. After they changed to CSR2, miraculously my farm went to an 81 CSR2, it doubled the value pretty much. Same ground.
- Looking at possibly, if you would consider the CSR1 values rather than the CSR2 values because in Iowa State University's information, the major difference between the CSR1 and the CSR2 is the CSR1 included a rainfall correction factor whereas the CSR2 does not and it will without a climate adjustment, the CSR2 values will have an upward bias in counties located in northwest Iowa that comes right from Iowa State's information.
- So I have you know family-owned land that I have maps of and they all went from mid 40s upper 40s from up to 65 to 82, 83 just from the CSR1 to CSR2 and if looking at future development of land you're looking at excluding anything over 65 and a half or 75 and a half.
- The Board of Supervisors just approved a new interchange south of Sergeant Bluff and that farm that they are going to be putting it on is a 74 an half CSR2.
- The other one I want to bring up also is the 20 foot height for agrivoltaics or ag solar. If looking at running equipment underneath the solar panels the one that MidAmerican does it tilts flat and you know follows the sun so if you're limited it to 20 foot at the height of it so the panels are 10 foot that means the tilt is only at 10 foot height you know and if we were to farm underneath it whereas grass or hay or pasture or having cows pasture underneath there they want that a little bit higher than just you know the 20 feet so those are some information for you to know. **Zellmer Zant:** Do you know what that height would be? **Jochum:** I don't know what that height would be all depends I mean if they're going to they've take about like Iowa State has a farm right now that they got money for if they're putting 30 or 40 acres in right but it all depends on if they're if you growing vegetables you know if its manual labor to pick the vegetables it doesn't have to be that high but you know if they're using mechanical stuff it'll have to be higher there's a lot of studies out in Pennsylvania, New York.

Brad Jochum (Plymouth County) (51:44 to 53:22) - **https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3104**

- Live in LeMars, Iowa. I grew up in Woodbury County though I moved to Plymouth County to be close to my clients. I own land in Woodbury County with my brothers and sister uh and my brother Greg that for me um if I wanted to have a solar facility owning it with them uh I think I should be able to um we have an undivided interest in the land so no one individual is designated as the owner of that uh would complicate things as far as ownership goes if I wanted to be involved with this uh solar utility solar project it would not be fair to them also a solar project on their land. I'm also an owner in that farm. Uh taking a step further if my parents had a revocable trust set up and I would become an owner of the property after their death which is already in the solar project would I have to sell my ownership because I'm not allowed to be an absentee owner of that uh this is a complicated issue? I have faith in the zoning board to sort this out uh utility solar would be a positive alternative for Woodbury County for electrical generation.

Tom Jochum (53:42 to 55:59) (Sergeant Bluff) - https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3222

- I support solar. Its clean energy. Renewable energy has been a big factor for electric grades in Iowa. The average cost is lower than most of the country. It has become more reliable and efficient the last few years. Port Neal North commissioned in 1974 was a coal fire plant retired in 2016. That time they had a lot of employees and after the shutdown they lost many of their employees. They lost several contractors that continuously worked on that site for Neal South as a coal fire plant was commissioned in 79 and is currently still operating. As the movement towards clean energy in recent Iowa Supreme Court ruling there is growing pressure on MidAmerican Energy to close or convert Port Neal South. MidAmerican is a leader in renewable energy. Now is the time for solar to step in and fill that gap. Existing equipment transmission lines that are already in place solar energy will be able to save some of those high paying jobs and bring in electricity generation additionally solar energy will be a great source of income for Woodbury County. Construction process creates jobs. More importantly the land used for solar energy will pay a generating tax based on kilowatt hours. According to the county Board of Supervisors' calculations tax generated by solar will be 5.3x higher than current agricultural land tax. A tax revenue will be by the county will be increased 5.3x as needed all this additional revenue will be available for the county to use where needed. I believe Woodbury County should take this opportunity.

Eric Nelson (Moville) (56:24 to 57:44) - **https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3384**

- I would like to encourage you folks to um earnestly seek out all the information you can from all sides. I found it ironic that we started off this meeting with a discussion about wanting to just build one home on um AP and it's not easy just to do that and yet we're talking about building uh commercial solar and this solar is not agricultural. It's commercial. I mean any of the electricity that can be generated on what's called agricultural can be converted into electricity used anywhere um, so I think we need you to be really careful on converting AG land. If you want to have um solar, I think it needs to be on commercial property because that's really a commercial entity um and I think that your very first activity today um and how steep of a hill it is to climb to just build a house on AP ground um I think that kind of answers the whole question for me hopefully for you too.

Ron Wood (Salix) (57:57 to 59:24) - **https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3477**

- I support solar in the fact that I worry about the Siouxland area trying to grow in comparison to Omaha and Sioux Falls on a regular basis and can't seem to get the most. (In audible). I was just talking about comparing ourselves to Omaha and Sioux Falls and the need for power generation and I kind of feel like if uh the two coal fired plants that are in existence now no longer produce energy where does it come from and how do we get the growth that we want in the Siouxland area to stimulate our economy we have to bring in more power from other areas we just more relying on other areas to sustain what we're trying to accomplish here in addition to that I think a lot of this new commercial a little research of commercial solar is very low to the ground and companies are very eager to appease neighbors with barriers, tress vs. whatever so I just encourage you to consider those facts.

Elizabeth Widman (Sergeant Bluff) (59:59 to 1:04:46) - **https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3599**

- Resides in rural Sergeant Bluff. Landowner.
- Children are fifth generation Woodbury County farmers.
- Never knew father-in-law who passed of Lou Gehrig disease before met husband.
- Husband always said his father taught him and his brothers and sisters to take care of the land
- Your farmland should be better when your done with it than when you started.
- Husband taught this to our children.
- What I could find there would be 1,500 solar panels per acre.
- Over 8,000 acres of solar panels have been mentioned in Woodbury County.
- I've heard by where I live, they want to put 2,600 solar farm there.
- You're looking at around four square miles of solar panels and from what I can tell on average solar panels only last about 10 years.
- They also have hail storms that can destroy solar panels.
- Once they are done, they are not recyclable. They contain toxic chemicals that can go into the ground.

- They are going to fill the landfills. Sometimes they just leave them above ground and set them in piles which is an eyesore.
- It had been mentioned at the Board of Supervisors meeting about the Constitution and property owner rights. It has been mentioned here tonight that you have a right to make money off your property. I believe in the Constitution. I believe in property rights but this county has an ag preservation designation and the purpose of that is to preserve ag land and the farmers have been free to use the land for farming and to make as much money as they can and many have done quite well on this system.
- However, the Constitution and property rights does not give permission to change the rights of a whole county by putting a conditional use on it to allow a few individuals to make a lot of money on industrial solar energy projects on farmland.
- The rest of the county will not really benefit from this change it leaves us open to having to go through a process if somebody wants to be an industrial solar system by us we're going to have to go and say hey I don't really like this.
- We shouldn't have to live on our properties being worried about being subjected to that. I believe putting a C on the land would open us landowners to having eyesores by our property. I'm sorry if you think looking at acres of solar panels is beautiful, but I live out in the county because I love to see the landscape there, I love to see the crops to see the sky to see it all. Even if you put these things down low If I look out my window, I'm going to see acres of solar panel that's not going to be ag land.
- I've also read there is possible health effects. The solar panels put off a hum. If you live out in the country its quiet. It can cause migraine headaches.
- I believe these industrial solar products belong industrial land. Not on ag land.
- The change will affect the whole county and will benefit a few and it belongs on industrial zoned land.

Bob Fritzmeyer (Sioux City) (1:04:53 to 1:07:00) - https://youtu.be/XZQa-5kNgcQ?feature=shared&t=3893

- Commend Zoning Commission for seeking a balanced view on this.
- MidAmerican Energy has put in a solar installation on their property. This installation has helped the soil actually. An installation like this does help the soil. It's not an agricultural use for some years. Grass is going to grow there. The soil loosens. The soil rejuvenates. I commend MidAmerican Energy for what they've done and bring about some transition from the fossil fuels to the renewable energies.
- Besides those positive effects, those solar installations have a 60 foot distance that has to exist between the outer fence and the first solar panels, and that area can be put into grasses and will foster pheasants and quail and help the hunting prospects in Woodbury County.
- This would be a positive step to continue with your conditional use and with the needed aspects scrutinizing the needs that each applicant would have for the solar installation.

Leo Jochum (Salix) (1:07:12 to 1:10:42) - https://youtu.be/XZQa-5kNgcQ?si=K7rB1XziF7cvPxEH&t=4032

- According to independent researchers, Iowa residents enjoy a lower residential rate than most people in the United States with an average rate here of 13.12 cents per kilowatt hour versus 15.72 cents per kilowatt hour nationally this for Iowans represents an annual monthly rate of $16.32 versus a national rate of $147.64 or a savings of amount $370 per year for every household.
- Renewable energy in Iowa is the main factor for these lower rates utility solar has advanced its technology in recent years to become the least cost provider for electricity with that some people have concerns about the landscape around such a facility I can see their concern. That's one concern I'd like to address tonight.
- When a residence is next to a solar facility, a vegetative screening is provided by using evergreen trees, shad trees, shrubs, and a diversity of plant species to preserve the aesthetics of the surroundings vegetative screening is allowed up to 20 feet in height which is about six feet higher than the solar panels each neighbor is contacted by the solar company for their input regarding where to place the screening what type of plants to use and the length of such screening that goes in front or across their acreage.
- Vegetative screening for neighbors should be included in the conditional use permit.
- Another emotional issue is using farmland for solar. The example used as 51% should be dedicated to ag use. This could be in the form of grazing livestock, raising crops that are not tall.
- A lot of research is ongoing with agrivoltaics, but more research must be done before this is an acceptable practice.

- Fencing needs to be in place for unauthorized entrance or any time of vandalism. However, fence lines or stranded acres there will be some stranded acres in the middle where there already existing easements, could be used for beekeeping for specialty crops because they would be outside of the restricted zone.
- The idea of capping acres at 2% or 8,540 acres on agricultural preservation, that's okay. That is actually more restrictive for the county than it is for utility solar. 8,540 acres has the ability to produce 1,420 megawatts of electricity when Neal North and South were in production together, they produced 1,340 megawatts which is less than the amount that 8,540 acres would produce.
- At the present time, the infrastructure is not here to accommodate 1,420 acres of solar. Utility solar is safe, quiet, and does not pollute the soil and is a great revenue source for the county. I support placing utility solar as a conditional use.

Kim Alexander (Smithland) (1:11:03 to 1:13:17) - https://youtu.be/XZQa-5kNgcQ?si=6wwYGQVw1sc4Q0cp&t=4263

- From Smithland. Farm in the area. Appreciate the Commission and the Jochum's speaking their peace.
- Seems to me this is about the money. Making money and getting money.
- Ironic to take the most efficient and least expensive solar collector in creation which is green grass, corn, and soybeans and you're going to cover it with concrete or asphalt or whatever and put up these solar panels that's the height of irony. The days of unlimited use of our land, we can use it however we want and to fooey with anybody that tells us different goes or gone when we live in a community, we have to consider what the community has to say about that use of the land and so those days are gone, and I appreciate the commission having this meeting tonight.
- Again, it's all about the money. More tax revenue baloney. The county gets enough tax revenue. I'm not going to put in something to generate more tax revenue. The question is how much money is enough and if you're not making enough on your ground that you have then get rid of half of it and do a better job with what you've got instead of putting asphalt on it and putting in solar panels. Again, there's more to life than just making money.
- As Mrs. Widman said treating a piece of land improving it so that it's better than when you got it that you leave it better than when you got it. It's not about the money it's about caring for the land, it's about caring for the land it's about planting renewable crops instead of renewal industrial solar.

Will Dougherty (Urbandale) (1:13:39 to 1:16:55) - **https://youtu.be/XZQa-5kNgcQ?si=Qgt8OF3ZIjj0gHBn&t=4421**

- From MidAmerican Energy.
- Referenced the Commission's consideration of neighbor, height, CSR ratings.
- Looking at how to carve and dice the situation for Woodbury County as a community in general.
- The CSR maps that you have in front of you right is one of many kind of layers on top of layers when you look at it from a zoning perspective similar to a lot of renewable projects that are install. The state we've done six solar projects today we have 38 wind farms across the state. Yes, the county has a large dictation as to where the solar projects can go in their own respective county there's a lot of other considerations that come into play when you're going through the development process for a solar project. Dan mentioned the FAA. There's consultation with them, the DOE, the DOJ as well for the sighting of these facilities whether or not you have anti-glare films put on the front of the solar projects or the panels themselves. There's consultation with the Iowa DNR. There's consultation with the fish and wildlife service as well. Like you said Dan, Neal solar project that we have down by Port Neal right now there was a lot of communication between ourselves and the county to kind of sort some questions. I know there's like a pipeline crossing question that came into play. We submitted for you known grading permits, secondary roads and everything like that and so these are all questions that I think the county just needs to take into consideration when drafting the ordinance or any zoning regulations around potentially solar for ag use.
- You know a lot of questions that have come up tonight have been you know regarding about the land usage and returning it back better than you found it a lot of counties throughout the state, they do have mechanisms in place such as decommissioning agreements with the county in which a developer has to enter into. There a lot of other mechanisms that you can look like they help protect the agricultural use and the long-term viability of that land uses as well as so there's a lot of different things you can kind of tweak and play with to see how it fits your community's use and see how you want the solar project to transition you know beyond the 30, 40 year years of life back to ag or potentially into a secondary solar project or something else entirely so you would mention a lot of the resources that have been sent over from some of the other entities in the state that advocate for balance policy outcomes.

- I'm familiar with a lot of those resources. If you have any questions, please feel free to reach out and as always, I've done this at a Board of Supervisors meeting but if anybody and this means anybody wants to come to our Neal solar project, please let me know. I'll leave my information with the board and they can put it in the packet material but the Neal project is down by Port Neal and would love to show everybody around.

Ann Johnston (Salix) (1:17:38 to 1:18:26) - https://youtu.be/XZQa-5kNgcQ?si=BzSVyF0F0dImCUje&t=4657

- I would consider these solar panels an eyesore. And I like Elizabeth like to see the corn and beans. We have two Fox dens that are across the road from us. Every summer, the mother sits back and lets the two babies come over and eat mulberries from our trees. Where are they going to live with these solar panels here over there?
- I like the farm. This belongs in an industrial setting. Not out in the country where people live for peace and quiet.

Wally Kuntz (Moville) (1:18:48 to 1:21:05) - https://youtu.be/XZQa-5kNgcQ?si=P0CRduozXpG_ajrQ&t=4728

- Not for or against the project. Was here for another reason. The question I have is about the taxes to the county when the solar goes up. Obviously, MidAmerican is a commercial entity. Do we get to reap the benefits of square foot commercial taxes on that then or how's that work. I guess that the assessor. I don't know how that works to be honest with you does anybody else?

- **Supervisor Jeremy Taylor (1:19:20 to 1:21:05) -** https://youtu.be/XZQa-5kNgcQ?si=cZSv6H8-M1XSsEF5&t=4760
    - One of the questions that we asked our assessor was if zoning matters materially to the county based on the zoning designation in regards to taxation. The answer is no whether the solar project was in ag preservation or whether it was an industrial. It's taxed on a generation usage so it's immaterial whether the zoning designation ultimately is.
    - So one of the things we asked July Conoly, our assessor to do is to run 2,500 acres in ag and just to do it on a general survey of ag land an re-yield about $94,000 on 100 megawatt project that's approximately 2,500 acres, it would yield about $504,000 that is not a way of saying this is for or against so I don't want that to be implied these are just dollars that we asked her to run on a comparison basis and if I could just add one more thing from a County Board of Supervisors perspective, my goal here tonight isn't to push one way or another but just to have the ratio of I have two ears and one mouth and try to use them in that proportion and to sit and listen and then take back the information that I'm hearing tonight and take that back to our Board of Supervisors so just want to commend planning and zoning and the director in terms of holding this public hearing.

Commissioner Bride (1:21:27) - https://youtu.be/XZQa-5kNgcQ?si=cZSv6H8-M1XSsEF5&t=4887

- Question for Will Dougherty regarding the footprint of the largest solar site currently in the State of Iowa.

- **Will Dougherty**
    - Are you referring to our Holiday Creek project?

Bride: What's the acres involved in that?

- Dougherty: the largest one we have is the Holiday Creek project. That's kind of northwest of Fort Dodge I believe encumbered by the solar project itself it's roughly a little under right around 800 acres that's for a 100 megawatt project and that kind of goes with the rule of thumb approximately and a lot of topography can play into it along with you know setbacks set forth by the county zoning as well as for how you can kind of optimize use of land but the general rule of thumb about 8 acres per megawatt per solar project. Bride: Another quick question before you sit down. To date, has there ever been a request to the Iowa Utilities Board to grant eminent domain for any commercial energy project?
- Dougherty: For a commercial energy project? So, I'm not 100% familiar with. Bride: What about solar then?
- Dougherty: Solar I'm not familiar. I mean we have had to go in for like sites certificates basically there's certain thresholds that for generation basis you have to go into the IUB but it's not for an eminent domain case, it's basically

just site certificate basically authorizing you as a public utility to utilize that area. It's somewhat similar to kid of the process the county holds their public hearings. There are interveners involved and stuff like that for a lot of our smaller scale. So, if it's not going to the transmission grit, it's going to the distribution system that did not go through the IUB process but to your original question of have any of them been put in place through eminent domain and have we taken landform someone in order to facilitate project answers no.

Kevin Alexander (Smithland) (1:23:45 to 1:27:30)

- Sir before you sit down can I ask a question?
- Since the big problem with photovoltaic and generation is storage of the power. What you do, so say you got this megawatt photovoltaic solar utility. Where's that power going or and with the wind generators, I noticed a lot of times, when I head to Schleswig and Smithland a lot of times though things are shut down. I assume they have more power than they need so what about the whole storage thing on this generation, I guess.
- Dougherty: I don't know if we're addressing storage along with the solar but I mean it's so basically it's as you alluded to it's not an on-demand energy source and so the wind turbine and solar panels similar you know they run when that resource is available so the way that it's kind of operated and it kind of depends largely upon whether it's a distribution scale solar system a transmission scale solar system but you know kind of under the same lines from the physics perspective that energy goes to where it's first basically it gets put onto the grid distribution or transmission goes where it's need first whether that be the next house down the line or 20 miles down the line doesn't matter and then basically jumps off to that nearest load center that's on that system there so from the energy storage perspective I guess I'm not sure what the question really was. Alexander: Well, the point of the question is the functionality and the utility of these solar farms that you want to put in if they're going to sit idle half the time like those big electric fans over by Schleswig are whenever I drive over to Denison then what's the point? Same way with these photovoltaic panels, if they're going to, do they switch them off when they have all the power they need or do they just keep shifting it around?
- Dougherty: So, I think it's important to kind of take a step back and look at it from the perspective of an above all approach. Obviously here in Woodbury County we have Port Neal down south of Sioux City. That's an on demand coal fire facility and we have five of those throughout the State of Iowa and we have one natural gas facility in the Des Moines area. And so we've transitioned to a point here where renewables have started to act more as like a base load generation traditionally that was more like your fossil assets or your nuclear assets so yes they are you know vulnerable to when the sun is shining or when the wind is blow but that doesn't mean there's not value in them it's above all approach there's a lot of discussion earlier about the rates that within the State of Iowa are lower than the national average that's largely a portion at least for MidAmerican our rates are fifth lowest in the nation for investor own utilities and we have the second and third lowest as well in South Dakota and Illinois but that's largely contributed to the zero cost resource of actually running these facilities from a fuel standpoint as opposed to the fossil generation standpoints. I'm not saying that fossil is bad but we still run those facilities they're needed every single day for that times when the sun isn't shining wind is blowing but they are additive in nature and they're complimentary in nature and so even though they might be not working one day or curtailed one day or there might not be enough winter sun one day doesn't mean they're invaluable resources. They're just different resource types guess this is kind of getting off track discussion but hopefully that helps a little bit guess.

Public Hearing #2 (Woodbury County Courthouse) – September 25, 2023

On **September 25, 2023**, the Commission conducted a second public hearing at the Courthouse. There were 25 members of the public at the meeting including one on the phone. Twelve addressed the Commission and provided the subsequent information. Below includes links to the audio and summaries and/or direct quote adaptions of the information shared by the public. The following is not intended to be a perfect transcript but is offered to provide context of the debate. The audio can be accessed on YouTube using the following direct link: https://www.youtube.com/watch?v=LJ-k9MCD8_8

The list of Zoning Commission meetings inclusive of the agendas, packets with backup materials, minutes, and videos (Audio) may be accessed at: https://www.woodburycountyiowa.gov/committees/zoning_commission/

Matt Countryman (23:22 to 23:51) - https://youtu.be/LJ-k9MCD8_8?si=AOMcmUF7nK4buE1W&t=1401

- Renewable Energy Equity Partners
- Mitigation plans and agricultural restoration plans set a good pathway forward when applicants are seeking a conditional use permit with an overlay district, something that can be incorporated into a development application regarding utility scale solar energy parks.

Deb Harpenau (Salix) (23:13 to 25:27) – https://youtu.be/LJ-k9MCD8_8?si=UY7uYtXUwe2Uytgv&t=1453

- Throughout our daily lives, we see change. Usually, it's gradual and it's not even noticeable, so it's just accepted or even expected.
- For the last decade or more people started addressing climate change and as a result started researching alternative energy source one of which is solar and again this change in fact is a sudden change. I understand for some this can be scary, but we find solutions we should listen to the facts such as native grasses will be planted under the panels this land used to be all native grasses before it was broken up for agriculture.
- These native grasses will be home to many species of wildlife while the grasses rejuvenate the soil through its roots and water absorption and retention. There has been rumors that Neal 3 and 4 will scale back or possible shut down in the future. If that would happen, I think utility solar would be a clean nontoxic and economical source of electrical generation.

Wally Wagner (Salix) (23:43 to 28:54) - https://youtu.be/LJ-k9MCD8_8?si=UKjnw3mKn5lgCPdY&t=1543

- Back 87 years ago, my grandfather bought a farm on the river which is located just north of Neal South and then later on another parcel to the east now my folks bought a parcel that actually adjoins Neil South to the east and you know we were there before Neil South was so Deb just talked about progress or change. I don't think there's anybody in this room that saw more change in their neck of the woods than we did.
- I was a teenager when that all started happening besides the fact that the Corp of Engineers completely rerouted the reiver we had landed to join the river and then after that our hunting and fishing ground was you know changed completely so anyway, we're talking about change we're really talking about progress.
- So, I have parcels east of Salix. I have parcels west of Salix. Grew up out there and I have a parcel south of the airport in the General Industrial zone and we have had at least 8 probably 10 different companies contact us for options on these parcels all over okay in all three of the areas so with the present interest in renewable energy it's my conclusion that it's coming to our area okay and the Salix area is primed for solar electrical generation due to the proximity to the Neal complex and the electrical grid that is there okay. So, to me it's like we're either going to accommodate it or we could put our heads down and but at it but it's probably not going to work okay as my mom would say we could be bullheaded about it okay, so the conclusion is like it was 50 years ago electrical generation is important okay. We're talking about millions of people being served with electricity now at present it's with renewable energy so to me lower production land which I have some that okay would be an appropriate consideration for you all and also the lower residential density. Okay so now going back to the CSR1, CSR2s, you guys heard about that last session the CSR2s are not accurate for what I refer to as gumbo. Okay poorly drained high clay density soils okay and so it's like they went two to one, so I don't know that is a really accurate consideration for you guys to think about in the future okay.

Jerrod Ulery (Ulery Energy) (29:21 to 30:01) - https://youtu.be/LJ-k9MCD8_8?si=zKyflbma0P1pphSB&t=1761

- I am the owner of UR Energy. I was present here I think about three months ago submitting a special use permit for a data center, so my company builds data centers all over Iowa. We have about 250 megawatts in our pipeline currently and one of our five megawatt projects is in the vicinity of these solar projects and wind projects that are going on so we support it. I'm here to support it. I'm not a local resident. I'm in LaGrande, Iowa but we have many sites in this area and we plan on developing those sites as well so I plan on seeing you guys many more times so thanks for having me.

Kevin Alons (Salix) (30:14 to 32:55) - https://youtu.be/LJ-k9MCD8_8?si=jIDZGUvtNarMvE7D&t=1814

- I've heard the talk about progress and a lot about renewable energies. I'd just like to first just challenge the assertion that the use of solar on agricultural land in Iowa meets the definition of agricultural preservation right. It's not an agricultural use and I think that's it's kind of a stretch. It is quite a stretch to call it an accommodation that this is something that's compatible with agriculture. It's obviously going to supply agriculture and you can argue whether it can be put back at a later time but that's really a secondary issue.
- Obviously solar is being considered along with some of the other renewable energies because they are being heavily subsidized as I think everybody here recognizes. We would not be having this discussion if there wasn't a significant federal subsidy for this process. I'm not sure that first off, I think everybody also recognizes that those subsidies are being paid for with debt. Not with revenue and they certainly aren't going to pay for themselves so the energy being produced is not a sustainable process even though that's the way we tend to describe it. I know that there is consideration and this may be outside of the purview specifically for this discussion about how much revenue might be increased for either the individuals who the landowner but more specifically for the county but I really wonder what the net effect will be for the county for how much revenue comes into the local area how much revenue is generated and how much is lost because of the changes how money is spent in the county because I'm sure most of these entities. I would assume that the entities that are going to bring this into the county are not local so their considerations really for any of those things is about chasing short-term profit coming from federal subsidy so I probably will run out of time but I mean just as a fundamental, solar is a very inefficient way of producing power and it's hard to imagine that it could ever produce anywhere close to the amount of money that is being promised again through subsidies so I feel like that is a short-term bet, something that is certainly not assured long term and I really question how long into a 40-year contract that apparently they're discussion they could actually be relied upon. So, I live down in Salix at least I live in the area and I'm not sure they would but we're talking about large projects that could have a very large impact on property values so just some things that I would like to see considered.

Rebecca Moerer (Sioux City) (33:17 to 35:06) - https://youtu.be/LJ-k9MCD8_8?si=ASj3wSjW2Qjm1drS&t=1997

- I live in Sioux City. First of all, I feel that people should think about this a little bit more. I believe solar farms are misnomer totally because energy is not an ag product. The definition of farm is an area of land and buildings used for growing crops and raising animals at the last meeting the proponents of these solar zones talked about planting grasses and trees to increase the land value and protect wildlife but they were presented as ideas and not requirements. So, I guess that would be one of my main concerns also are their fees if these solar panels break down who pays for those who checks on them to see the maintenance is maintained and what happened to those and whose cost is it after they don't function anymore. We still have unsightly satellite dishes around the county to. They talked also about taxes generated would they be staying in Woodbury County from these solar areas? I do feel that there's plenty of unused commercial properties where these could be implemented to benefit a larger number of people or the units could be directly connected to use to produce energy that they claim there's so much of directly to an item that needs that energy instead of taking up crop land or animal land and I do feel that these do disrupt wildlife areas so I am against this.

Jesus Cendejas (Salix) (35:17 to 38:32) - https://youtu.be/LJ-k9MCD8_8?si=35eSEuc4uS08hIlF&t=2117

- Thank you for this opportunity and we believe God has appointed all of you guys in this position and we pray that you make good decisions and everything that you're involved in apart from our United States Constitution which I am grateful for the Bible is the first to call the right of owning and being able to use private property. The latter informed the authors of our Constitution and is evidence in the language they're in two of the Ten Commandments say thou shall not steal and thou shall not covet these implying and tell the right to work hard and the right to owner possess including the right of private property part of the issue with the situation is not simply the thought or idea that a person should be able to deal with their property as they please but rather is it is that in this liberty and reality one is still responsible for the stewardship of the land that God ultimately owns and the neighbor that lives beyond one's boundary as an example Exodus 21, 20-29 says if an ox gores a man or woman to death then the ox shall surely be stoned and its flesh shall not be eaten but the owner of the ox shall be acquitted but if the ox tended to thrust with his horn in times past and has been made known to his owner and he has not kept it confined so that it has killed a man or a woman, the ox shall be stoned and its owner also shall be put to death as you may see God's law informs us that the way we manage our private property matters in more than just our personal benefit it also matters as how it

affects others quite weighty and this is just one example there are many angles we can take and should consider you guys ourselves here are a few subsidies, all this money is given for this where does it come from and who's going to pay for it and maybe even who actually owns this land depletion we don't have more farmland than what we possess now there's containment effects jobs and economy outside entities are paid for this project and other non-Iowa residents hired will benefit most apart from maybe only a few local hired individuals in the long run this is historically the case neighbors, those who have invested in living in the area have the right to expect present zoning to be honored so that their own investments are not diminished due to change. In closing Dr. Gordon Wilson, Senior Fellow of National History of the New St. Andrews College in response to this complex issue set states its true once operational wind energy cuts emissions by running on 100 renewable resource but it is that the whole story? Wind turbines and solar panels along with the batteries required to store the energy have a high monetary environmental production cost. These upfront costs may balance out over time with low operating costs but for now the power that the wind and solar farms provide is more expensive than the traditional power this costs demands government subsidies that are likely to greater than the reduced energy cost of the wind and solar farms. Additionally, wind and solar farms require vast areas of land that can change the natural aesthetics and landscape and interfere with wildlife habitats, bats and bird are often killed by the rotating blades or the concentrated beams of light and the termite vibrations produce sound pollution with complex environmental topics such as alternative energy we must carefully consider the impact on our neighbors and God's creation as we make his dominion decisions.

Elizabeth Widman (Sergeant Bluff) (38:58 to 42:23) - **https://youtu.be/LJ-k9MCD8_8?feature=shared&t=2338**

- I'm a landowner in Woodbury County and my sons are fifth generation Woodbury County farms and um but I would just like to address there seems to be a misconception about constitutional rights and property rights and that you cannot restrict a property owner from doing anything they want to on their property and if the situation was reversed and incorporated city land had a C put on it to allow ag activities in the city um so that someone could put a hog building on their property in tow if they had enough property to do it and someone else maybe want a couple cows and a flock of chickens in there um you know and say will the neighbors just have to put up with the flies and the noise and the smell uh no one would be in favor of that so I don't think it's right to come out to ag protected properties and say um you know we're going to put a C on here and you just have to put up with when they put up these solar facilities is not ag land and it is not um it is not the life out in the country that people want out there um it can if you put these up it can lower property values you have noise from these solar panels there's glare, there's lots of beautiful viewage um there's harm to wildlife and birds um there's um 12,860,000 solar panels that will be not good in 10 years or less if you have hail storms. We're going to have to do something with those they're going to be in our county and um we could possibly have a change in administration here with elections coming up and there might not these solar panels might not be so subsidized um I read somewhere environmentalists are actually asking in some areas to quit putting up so many solar panels because it kills the birds um the extreme heat from the reflective material can instantly incinerate them it changes the migratory patterns especially down by Salix you know you have birds come through on my property I have a pond we have um the geese come through and um the biggest treasure in Woodbury County is our people that live out in the county. My children have been involved with 4-H we go to the fair you know if you put these solar facilities in their people are not going to view this as the beautiful ag land that they've lived in these are industrial. They're not they're not solar. Is that my time and uh so thank you for listening your consideration and I just ask you to you know preserve this for the people that love the land and want to live out in the country.

Leo Jochum (Salix) (42:34 to 45:15) - **https://youtu.be/LJ-k9MCD8_8?feature=shared&t=2554**

- Good afternoon, thanks for all the work you people have done, Leo Jochum, Salix, Iowa. About 10 days ago, my wife and I took off and went to Indiana to see relatives at the quad cities, we go off the interstate, took the back roads through Illinois, those county roads are all blacktop but they're very narrow as we were enjoying the landscape, we came upon a utility solar facility actually when we saw that we were only about a quarter of a mile away that's when we noticed it, we went along it for about a mile and then we pull over and stopped as we got out of the car pheasants flew out of the pollinator area out of those grasses that were inside the perimeter fence, we took some time just looking around and listening there wasn't any electrical hum like you hear in electrical lines. There was no sound of motors but what we did hear was crickets. We could hear the crickets chirping the grasses under the panels were very green. They were probably mowed within the last couple of weeks. The pollinators between the panels and the fences. They were green and flowering as we drove away, we noticed some acreages a few across the road use the

vegetative covers that's always supplied free of charge by the solar companies. There are a couple of acreages on the same side of the facility that had a windbreak that was probably in place before the solar facility was built. We were impressed with how professional everything looked. There wasn't any machinery parked outside. We did not see any trash. We didn't see any piles of used panels anywhere actually I wasn't surprise to see how neat everything looked. The other facilities that I have been at looked just as good. If utility solar is allowed in Woodbury County I would employ the same practice today that I used in the mid-1970s. In 1974, we built a house, a new house on our farm. In 1978, I expanded my hog operation by building a confinement facility. The concerns of the neighbors were satisfied when I built it approximately 400 feet from my house. If utility solar becomes a reality, I would allow panels 360 degrees around my house. If the pipeline easement allows it.

Ann Johnston (Salix) (46:33 to 47:17) - **https://youtu.be/LJ-k9MCD8_8?feature=shared&t=2793**

- I live in Salix out in the country. I thought the only mortal sin anymore was not recycling. Leaving a bigger footprint. I understand these solar panels are not recyclable so what are we leaving for our kinds and our grandkids? My second point is parts of these solar panels are made by the Uyghurs, slave labor in communist China. The women and the children are physically and sexually abused. I don't want any part of that.

Will Dougherty (MidAmerican Energy) (47:34 to 50:56) - **https://youtu.be/LJ-k9MCD8_8?feature=shared&t=2854**

- If I may um sorry, I was going to wait to chime in, but this is Will Dougherty with MidAmerican Energy. Is it okay if I give a quick comment. Zellmer-Zant: Yes.
- Okay, yeah, so I guess there's a lot of good comments. I think overall from the meeting um a lot to kind of unpack but I'll just kind of keep it short and simple um you know our position on it from the zoning perspective is um you know there's a lot of good ways that um a lot of these concerns can potentially be mitigated and I think through a permit process and a public hearing process any constituents that you know live an adjacent proposed project would be able to have their case heard and the conditional use can directly reflect any of those concerns for mitigation side of things but kind of in line with what we're discussing last week that the land use for ag lands and potential for solar to be placed on them I think having a thorough decommissioning plan in place um that's something that's required throughout a lot of counties throughout the state something that gets reviewed and approved by both the counties and the proposed solar developers so that's a mechanism that the county can try to utilize to mitigate any future impacts to the ag land and restore the property back to its original use after the decommissioning of the project. Additionally, um you can look at things such as visual screening or shielding from projects a lot of times these projects if they are located in ag properties they're surrounded by adjacent ag parcels as well um having buffers you know whether that be a setback from road right of ways or from fence lines allows for those visual screenings to take place once the vegetation is established so having a plan on the front end of a project that a developer or a project owner must enter into a county is a good way to try to mitigate that as well establishes vegetative growth plans seeding mixes stuff like that kind of lays out on the front and the expectations from the county side of things um for the maintenance of it and the growth of it long term for the project overall I think for the general comments we've received on solar it is an above all approach for MidAmerican's point of view. I think someone pointed out earlier you know. Neal is located down in Salix area. Someone else had pointed out that you know they didn't believe that solar was a viable option um as we look toward transitioning uh from a more carbon intensive resource to more diverse resources it is an all of the above approach there is no one-size fits all. Ther is no silver bullet um it can't all be wind; it can't all be solar. So having the resource available to help hedge and mitigate any potential fluctuations and market prices whether it be from natural gas or coal um or material costs from winter solar having all those resources available is in best interest of not only the utility customers but also the state in general having more balance portfolio and really starting to um kind of hedge your resources so that you don't become too heavy or too reliant on one so that being said um I'm always open for questions or comments um we can always try to get a tour for anybody down at Neal solar as well.

Daniel Segura (Sioux City) (1:38:44 to 1:41:43) - **https://youtu.be/LJ-k9MCD8_8?feature=shared&t=5904**

- Hy my name is Daniel Segura. I live in Sioux City uh I have family and have friends that have uh have property in sort of the subject areas um in this county um I just wanted to uh make a comment about this discussion about uh overlay and uh pairing that with the conditional use permit or maybe a variance or something of that nature I don't see how this necessarily addresses the concerns of those that are as we would say against the motion to institute uh promoting these solar panels um one thing I'm seeing is uh we already have um just by virtue of the statures and

ordinances in this Country uh a method to do something like that and that's the regular conditional use permit uh a way of applying and getting a variance that sort of thing what it seems like is uh this overlay might just be more of a sort of like a soft approval of these uh category of solar panels uh solar energy uh what have you and then it kind of sort of boosts it into being approved once it gets kicked down to the next so I don't see it as an extra protection for you know to uh basically give those that are uh opposed to this motion uh sort of like oh this is going to help the process like an extra check it doesn't seem to be that way one thing that I want to mention just about the conditional use permits those we can't take those away those are always permitted you know that will someone can't always apply for a conditional use permit or a variance and uh it seems uh that those would be a good way to if someone had a specific um and sort of a unique need for solar panels on their property or solar energy one clear example would be something like a medical clinic that's kind of out in the country and they need backup power and um you know I don't think anyone would uh be opposed to considering okay this is a special um this is a special example a special scenario where a conditional use permit or a variance it would seem reasonable that these people have a particular need for something that's unusual but the concerns that most people are having those that are wanting to retain the farming jurisdiction and the zoning of farming is that uh the if we open the door to everyone getting something then people will continue to get it um it we wouldn't say that we could allow variances and conditional use permits for every person for example like we've heard that wanted to farm in the city we would say well only if you had a specific need for that if there was something out of the ordinary um so that's would I would l just add to the comments to some of this talk of overlay and conditional use permits.

Work Session (Woodbury County Courthouse) – October 16, 2023

On **October 16, 2023**, the Commission conducted a work session at the Courthouse to consider utility-scale solar energy systems. There were fourteen members of the public at the meeting. Below includes links to the audio and summaries, paraphrases and/or direct quote adaptions of the meeting content. The following is not intended to be a transcript but to provide context of the debate. The audio can be accessed on YouTube using the following direct link: https://www.youtube.com/watch?v=lJAj6Xh3cSU

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Work Session for Proposed Utility-Scale Solar Energy Systems Zoning Ordinance Amendment(s).

Prior to this meeting, the Zoning Commission has held two public hearings to collect comments from the public (Moville – 9/11/23 & Courthouse – 9/25/23). Subsequently, a follow up public hearing will be held on Monday, October 23 at the regular meeting of the Commission that begins at 5:00 PM.

Priestley offered an overview of the evening's proceedings including five considerations for a potential utility-scale solar energy systems ordinance that could be considered by the Zoning Commission in preparation for a recommendation to the Board of Supervisors.

Consideration 1

Consider updating the General Development Plan and/or Future Land Use Map to facilitate the potential expansion of the General Industrial (GI) and Limited Industrial (LI) Zoning Districts and consider adding additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public.

Consideration 2

Consider retaining the current permitting procedures in the Woodbury County Zoning Ordinance but add additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public. Consider retaining the General Industrial (GI) Zoning District as the only allowed location for the consideration of a conditional use.

Consideration 3

Consider establishing a utility-scale solar energy systems overlay zoning district that requires a rezone application to be reviewed by the Zoning Commission and considered for approval by the Board of Supervisors that must meet specific criteria for the appropriateness of whether a particular area in the Agricultural Preservation (AP) Zoning District is suitable for utility-scale solar

energy systems. Consider adding additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public.

Consideration 4

Consider establishing an agrisolar utility-scale solar energy systems overlay zoning district for the specific purpose to coincide with an existing farming operation where each parcel of land shall include over 51% of its usage for farming purposes.

Consideration 5

Consider retaining the current policy for utility-scale solar energy systems (No changes).

The Commission discussed the current process for the permitting of utility-scale solar on agricultural land including the issue of spot zoning and its relationship with the comprehensive plan's future land use map. Priestley referenced the future land use map as a tool for justifying future industrial areas that could facilitate the permitting of utility-solar. He indicated that industrial areas could be expanded on the map for future consideration of solar. However, it would take going through the comprehensive map approval process of amending the map to reflect additional industrial areas that could later justify additional areas.

Priestley discussed the concept of overlay districts as used by both Scott County and Linn County. Scott County relies on a CSR2 average of 60 or higher to authorize the rezone while Linn County uses a score card or rubric which identifies a number of issues not limited to CSR2, grading, vegetation, and good neighbor payments in order to obtain a permissible score.

Priestley indicated that the rezone to an overlay is similar to a conditional use, however, it adds the Board of Supervisors to the process of determining whether or not an area of the county is appropriate for solar. Therefore, the Zoning Commission and Board of Supervisors would be involved in the overlay district rezone process. Additionally, the Zoning Commission and Board of Adjustment would be involved with the conditional use permit process. The Board of Supervisors would be involved with authorizing each individual agreement such as decommissioning, road use, agricultural mitigation, etc.

Zellmer Zant indicated that she likes the involvement of the Zoning Commission, Board of Adjustment, and Board of Supervisors as it gives the public more opportunities to participate in the process. She also questioned whether the overlay district is permanent or temporary.

Priestley indicated that depends on how the overlay district is designed. The goal of the district is to allow a new use but retain the base use. The policy for a decommissioning plan will be a determining factor as to whether the specific use of the overlay can continue or conclude.

Bride inquired as to whether there would be any issues if separate overlay districts associated with other projects were treated differently than others.

Priestley indicated that there must be clear consistent expectations in the requirements for establishing the district, however there can be some room for conditions if information is identified that should be addressed.

Priestley stated there must be a balance, but various options must be exhausted as applicants/developers must know what they are getting into from the start.

Priestley discussed other considerations such as separation distances, setbacks, setback waivers, and the floodplain.

Priestley discussed a potential application process and expectations of staff, associated county departments, the commission, and boards. He discussed the concept of the solar-ordinance conditional use as being portable for either the industrial or overlay district. If the overlay district is not used, then an added feature conditional use permit process can be used for the general industrial areas. If the overlay district is used, there would need to be a set of parameters for determining how the overlay gets approved.

Bride shared a concern that if the Commission recommends no changes that the Supervisors might consider going with a stand-alone ordinance which does not involve zoning.

Priestley indicated that a stand-alone ordinance does not include the zoning districts.

Priestley stated that the Zoning Commission has the right to offer any reasonable recommendation to the Board of Supervisors. He indicated that everyone is mindful of the harvest season, and we will continue to offer multiple opportunities for input.

O'Tool inquired about the downside of using the overlay district.

Priestley explained the debate of exclusively relying on CSR which could offer limitations for landowners.

Meister mentioned in a previous public hearing questions about the reliability of CSR. He indicated that he likes Linn County's rubric as including CSR and other items. He also inquired who would be monitoring or policing the rubric for items such as grass species.

Priestley responded that additional regulations create the need for more bureaucracy or more resources.

Meister inquired about how the Board of Supervisors arrived at 2% use of agricultural land. Is that enough or too much? He would like to see more information on how this equal to an existing power plant.

Bride indicated that 2% is around 8,400 acres and stated that the Supervisors may be looking for a cap.

Will Dougherty of MidAmerican discussed the acres on some existing projects in other counties.

Meister offered concerns about the 2%.

O'Tool inquired with Will Doughtery about the comparison of solar and wind in terms of megawatt capacity.

Bride inquired about the setbacks and if any of the allowed uses expand outside of the property lines.

Priestley indicated the existing zoning ordinance does not include separation distances beyond the lot lines. Setbacks are determined by the zoning district dimensional standards in the zoning ordinance.

Bride offered concerns about the impact of setbacks on other property owners.

Priestley indicated that setback waivers could be used, and he cautioned about the law of unintended consequences.

O'Tool referenced the 5% slope proposed requirement.

Bride inquired as to where the Supervisors arrived at that number.

Priestley said it has been offered as part of the consideration for the Commission to research as a possibility.

Zellmer Zant referenced the importance of comparing practices with other counties and not necessarily reinventing the wheel.

Zellmer Zant also referenced the needs of the cities including community solar.

Bride used Moville as an example using an overlay to facilitate solar. He also referenced the use of the percentage as an issue.

Priestley indicated that the 51/49% solar ratio is meant to ensure agriculture remains a primary function on ag land.

Meister inquired about the proposed one mile notification area.

Priestley responded that the purpose is to increase public awareness.

Zellmer Zant inquired with Will Dougherty as to whether these contracts are 10 years and questioned the rapid change of technology.

Dougherty discussed maximizing efficiencies as a driving factor of change. He referenced ISU's study pertaining to the coexistence of agriculture and solar with aspects such as grazing.

Bride inquired about damage to panels as a result of grazing.

Dougherty referenced sheep as an option over others.

Bride inquired about how the land can be put back the way it was through decommissioning and referenced concrete left in the ground as result of wind turbines.

Doughtery indicated that solar concrete footings are not being used.

Zellmer Zant asked about the Port Neal solar field's footings. O'Tool asked Dougherty about buried power lines and if they can be buried in the floodplain.

Priestley indicted that electrical assets must be elevated above the BFE.

Bride and Zant indicated there are locations where lines are likely buried in the floodplain.

Zellmer Zant asked Dougherty about how much power gets lost from arrays through distribution. Bride asked Dougherty about the driving factor for locating solar parks.

Zellmer Zant inquired with the Commission about what they like/don't like in the packet considerations.

Parker referenced the Supervisors' discussion point of Light Industrial. Priestley indicated that the limited industrial use can be associated with Consideration #1 which would entail revising the development plan.

O'Tool referenced having a list of bullet points to follow to determine where an area is appropriate or not.

Zellmer-Zant stated that she prefers to not go with the map change as referenced in Consideration #1 because there are other systems in place. She indicated that she likes the conditional use and overlay district format as it includes multiple entities.

Bride questioned the ability to accurately be able to paint/assign the industrial areas through mapping.

O'Tool indicated that the overlay could be used in AP areas. Bride discussed the flexibility of the overlay district and the permitting routes.

Priestley discussed the creation of the overlay district on a project by project basis. He indicated that an acre cap could be instituted in the ordinance. Zellmer Zent stated that one of the counties she researched had a cap of 400 acres.

Zellmer Zant indicated that the Commission appears to be leaning toward Consideration #3.

Priestley indicated that Consideration #4 is not field tested and was only brought into the discussion to discuss the relationship or co-existence of solar and agriculture. Agrisolar could be a part of Consideration #3.

Priestley also discussed how battery systems should also be brought into the debate with the growing technology. He made reference to its inclusion in Linn County's ordinance.

Will Dougherty discussed batteries in Iowa.

Zellmer Zant inquired if Consideration 5 is off the table. Bride indicated that not doing anything is not what the Supervisors are looking for.

Priestley indicated the Commission has the latitude to make a recommendation as you see fit as long as it has an explanation and rationale behind it.

Zellmer Zant referenced the overlap between Considerations 2 and 3. Priestley discussed the overlay district and the overlay rezoning process.

Parker inquired if the county currently has an overlay district. Priestley stated that there is a conservation overlay district that could be petitioned for.

Zellmer Zant questioned the reference to the 10,000 acre limitation, dimensional standards, etc. between Consideration #3 and #4. She referenced the relationship between the 51% agricultural use and the CSR2 rating.

O'Tool questioned whether the CSR2 should be prohibited or not. Meister questioned the inconsistency and reliability of the CSR2.

Doyle Turner offered comments about the accuracy of CSR2. Leo Jochum referenced the difference in rainfall between CSR1 & CSR2.

Zellmer Zant indicated that CSR's may be over 65 in industrial areas.

Priestley suggested the comprehensive plan and map allows for industrial areas to include areas of high CSR if the county plans for those areas to be industrial.

Meiser is concerned with CSR being the sole factor. Priestley indicated that CSR has traditionally been a part of this county's determination of land use.

O'Tool indicated that it would be appropriate the spell out that a lower CSR would be preferable. Bride indicated that CSR is presently considered in the rezone decision process.

Zellmer Zant inquired about 5% slope for fixed arrays and whether there should be a range. Bride offered concerns about the fixed percentage and discussed erosion. Doyle Turner commented about farming practices across the state and discussed soil erosion including highly erodible land (HEL).

Zellmer Zant inquired about the policy toward the special flood hazard area (floodplain). O'Tool suggested that the standard floodplain regulations could be followed.

Zellmer Zant referenced the conditional use language as being included along with the overlay. Priestley replied that it would need to be discussed and debated.

Zellmer Zant inquired about the definitions and the remaining concerns in the conditional use and overlay section.

Priestley suggested that the concepts must continue to be vetted through the County Attorney's office. It will be shared with both parties.

Priestley recommended that future work sessions be held following next week's public hearing.

Leo Jochum offered concerns about the comparison between Scott County and Woodbury County and the use of CSR2. Jochum made reference to other counties such as Louisa Couty, Mills County, Johnson County, and Linn County. He referenced the scorecard as used by Linn County and the role of using seed mixes.

Doyle Turner suggested that elected people should have a say on the locations of the solar parks. Turner offered concerns that parameters set could limit the amount of land available for these projects. He recommends giving the Supervisors more than one recommendation which could include the industrial areas. As part of the conditional use, he offered questions about the hurdle of being necessary and desirable.

Public Hearing #3 (Woodbury County Courthouse) – October 23, 2023

On **October 23, 2023**, the Commission conducted a third public hearing at the Courthouse. There were fourteen members at the meeting including one on the phone. Four addressed the Commission and provided the subsequent information. Below includes links to the audio and summaries and/or direct quote adaptions of the information shared by the public. The following is not intended to be a perfect transcript but is offered to provide context of the debate. The audio can be accessed on YouTube using the following direct link: https://www.youtube.com/watch?v=qNpK3atf1k0&t=3s

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Emily Segura (Sioux City) (14:45 to 18:24) - https://youtu.be/qNpK3atf1k0?si=CGm38fZqAo5uwVj2&t=885

I'm from Sioux City. I'm a native of Woodbury County here and I love our county. I think we have so much to offer um new people coming here and just the farmland um I grew up on the farm and I definitely love the land. It's very important to me that we take care of it so that's why I'm here today to just bring forth a few concerns that I might have about this that I think maybe aren't being considered at this time. So, like I said, I'm from this county I have been coming for the past serval weeks just listening to what's been going on um, and I think something that's maybe kind of failed um to be recognized is that these maybe are not as green friendly as we'd like to think. An article that I'm going to reference I'm only going to talk about one here um there's many more that I could bring forward if needed but the one we're going to talk about is from the Harvard Business Review. It's titled the "Dark Side of Solar Power" um in this article it is talking about how prior to putting up a solar farm you'd need a correct way to get rid of when these solar panels go bad so in the article it's talking about the waste that is coming from these solar farms because they go in our minds we think okay they're going to last us like 30 years or something well that's not actually what happens generally if we have like a hail storm that comes through it's going to take it out or um something of that nature or also another factor that it talks about is um that there is more efficient solar panels

coming up so the ones that we have now in 10 years we're going to have more efficient solar panels so when we're going to we're going to just change it so what are we going to do with the solar panels that are already in place they're going to get they're going to go to the dump because it is cheaper to send them just to the dump we don't have another way to do it that's what's going to happen and when they go to the dump which our dumps like this is going to be full of solar panels when they go there they also would emit toxic waste which there are metals that are in these and also glass products so we don't have a place to go with these solar panels once they go back so um in conclusion I would recommend that you check out the "Dark Side of Solar Power" from the Harvard Business Review. It's just a good insight into another viewpoint that possibly we're not thinking about that these things are not really helping us out in the long term because we're making our children take care of the mistakes that we did. – Referenced Article: "The Dark Side of Solar Power" by Atalay Atasu, Serasu Duran, and Luk N. Van Wassenhove. Harvard Business Review. - https://hbr.org/2021/06/the-dark-side-of-solar-power

Ann Johnston (Salix) (18:50 to 20:28) - **https://youtu.be/qNpK3atf1k0?si=CKeu0LvAPe5KTSfF&t=1130**

I have some additional information about the Uyghurs, the slave labor group in communist China that makes parts of the solar panels not only do they make parts for the solar panels, they make the whole solar panels and yes there's still a slave labor group the women and children are physically and sexually abused and that's who makes 97% of the solar panels that come to the United States. My second point is I've heard a lot about Linn County and Scott County but I haven't heard anything about any counties over here on the western side of the state so I made several phone calls and Sioux County has a big moratorium on any of this energy stuff that's going on the other counties um are not going with solar or wind power um in fact um they know very little about it so if it is so desired here in Woodbury County um it's not desired in surrounding counties.

Elizabeth Widman (Sergeant Bluff) (21:00 to 24:22) - **https://youtu.be/qNpK3atf1k0?si=OQ4pZ36Ye01GgmNK&t=1260**

I live in rural Sergeant Bluff and I'm a landowner and my sons again are fifth generation Woodbury County farmers. I've going to all the solar meetings two of the Board of Supervisors voted against putting solar on ag protected land so this is not a mandate from the board to ensure solar encroaches on ag land. Putting utility solar on ag protected land fundamentally changes the ag protected area and should only be put in industrial zones. MidAmerica's largest Iowa project is 800 acres but they stated they did not have immediate plans to locate solar in Woodbury County. The photo of Europe of farming between solar panels is experimental and not done in America. MidAmerica stated that cattle grazing underneath solar would not work because they would rub against the solar panels and knock them down. Grass planted underneath would not help wildlife because it was stated that fences need to be around these solar areas to protect the public at the last meeting Dan Priestley said that when utility solar is allowed in a preservation land companies would have to be forthright in their application however at these public meetings it has not been mentioned that the pro solar speakers have already signed contracts with an outside company and we should be told who this company is if you add up the acres of land in the plat book owned by these individuals in my area it comes to roughly 2,600 acres or around four square miles to get an idea of that magnitude um think of this the area of the city of Sergeant Bluff is only 2.11 square miles all of the rest of the cities in Woodbury County are less than one square mile four square miles is about the size of 1,936 football fields. MidAmerica said that their solar contracts are for 30 years if these signed solar contracts are the same. I'll be 97 years old before these is a possibility of decommissioning them back to ag if it ever is done. Utility solar is not agriculture in 30 years my grandchild recently born will have completed all of their schooling, their college degree and worked several years in their first job all without seeing this land in agriculture another solar project also unmentioned at these meetings is contracted near Rock Brach for around 3,000 acres My mom's um cousin owns 80 acres out there that he's turned into a nature preserve and I just uh recently inherited some land right next to that the solar would be out by there so utility solar is not agriculture the reason it's called agriculture preservation is to preserve it. These solar utility um facilities belong on industrial land.

Elizabeth Cindy Haase (Salix) (24:46 to 24:22) - **https://youtu.be/qNpK3atf1k0?si=fFZv8N6kDOvv8g__&t=1486**

I do have some concerns with the solar farming and one of them is uh the radiation that could be caused by it um cause I read some things about um the electromagnetic hypersensitivity to it that could give you um headaches and dizziness and nausea um and there are some who believe that there is increased risk of cancer for those who live next to them um and some of this makes sense because they're those who do live um near them have said that they have had headaches from them and so I think those are good reasons to um to think about.

Public Hearing #4 (Woodbury County Courthouse) – November 27, 2023

On **November 27, 2023**, the Commission conducted the fourth public hearing at the Woodbury County Courthouse. Thirteen members of the public addressed the Commission on a range of issues in support and opposition to utility-scale solar on AG land. Below includes links to the audio and summaries and/or direct quote adaptions of the information shared by the public. The following is not intended to be a perfect transcript but is offered to provide context of the debate. The audio can be accessed on YouTube using the following direct link: https://www.youtube.com/watch?v=Me_SPKOFaHM&t=11s

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Bob Fritzmeyer (Sioux City) (8:32 to 11:15) - https://youtu.be/Me_SPKOFaHM?si=xmjwED2uRr_egZar&t=512

Yeah good afternoon um I'm Bob Fritzmeyer and I'm I live at 2933 Leech here in Sioux City and I think that the overlay district for the solar would be really good for Woodbury County the solar panels they create a good pollinator environment or habitat which really according to the USDA is very important for uh ensuring that that we have food and we often hear you know Iowa helps to feed the world and this would be part of the mix really scientists estimate that about 75% of the world's flowering plants like alfalfa like soybeans that we have in plentifully here in Iowa are depending on the pollinators to flourish I think that the solar uh scorecard is all right on Target in helping to address the native grasses and there are three the three season flowering plants that do increase the survival of the pollinators that are needed. These will have a really positive effect on the food production. Solar is also as a form of renewable energy will improve our environment and the air that we breathe here in Woodbury County and I wonder um may I submit two documents these are from the United States Department of Agriculture and it's the National Institute of Food and Agriculture this one and the other one is from the United States Department of Energy it just basically these reinforce the facts I've been presenting here um would you be willing to accept these? --- Thank you.

Kevin Alons (Salix) (11:37 to 14:53) - https://youtu.be/Me_SPKOFaHM?si=3FxQmw16BOlX64K5&t=697

I'm going to speak again just in recommendation against an overlay for agriculture for solar and uh I just want to point out that again that uh solar and agriculture simply aren't compatible so using pulling solar on top of agriculture land especially land that's in production or productive land in the county which most of the land I think even that's been proposed to date or at least been considered is very productive land and uh the two really just aren't compatible a 30-year time period is a very long period of time and I'll talk about that later when it comes to decommissioning or other considerations but I would just urge that to be strongly considered uh talking about productivity is solar as I've researched and continue to look at it I mean it's something that is known to degrade over time so solar I've heard uh people talk about even in the first year or two there's like several different ways that solar degrades but sounds like even in the first couple years you might already see the production drop by well even a third and it will continue to drop year over year and that's established like a one to one and a half percent drop now that obviously doesn't directly impact the county when it comes to you know obviously how much but it does indirectly uh affect how much power is generated which therefore generate affects how much income is generated and that also affects how much taxes are generated so I I think that the science on these are while they have certainly been improved and I think they become less expensive they're still very high expense to put in place and when you look at how long they're going to operate especially in some of the conditions we have here in Iowa I think that uh it's it's kind of a stretch to say that we're we can count on these things even operating with any reasonable amount of performance for 30 years obviously the production of solar is uh quite low and it's temporary so it's it's not a baseline prod production model it's something that would be additive and in the end we we keep hearing discussions of how there's pressure to turn down our baseline or coal natural gas and other types of power production sadly that think these are being used as justification for that and I I I just think in the end that this is a it's it's a it's a false it's kind of a red hearing argument because it's going to leave us with without a Baseline and these can't reproduce that the only reason we're pursuing these things at all given the costs and given their inefficiencies is um Federal subsidies well it'd be one thing if we were doing these subsidies while we had a surplus of money but I think everybody knows we don't have a surplus of money at the federal government they're spending over a trillion dollars in deficit every year and our debt is growing rapidly so anything that this thing would generate is driving inflation which is going to really jeopardize whatever positives these things are touted to produce so just all of the all of the um fundamentals to these things are are questionable at best um the I just looked at the map and saw where I live from Salix I live by Salix just south of there and most of the land that's being proposed for this is right up abutting the the town of

Salix um I'm really curious to know what the town of Salix opinion is with that because it could affect how much they can grow it certainly will affect their land values and that type of thing so anyway those would be my primary reasons today to to resist a overlay or otherwise consideration for solar thank you thank you.

Robert Wilson (Rangeland Energy Management) (15:00 to 17:48) - https://youtu.be/Me_SPKOFaHM?si=bwEobOuCezpGpdJ6&t=900

This is Robert Wilson with Rangeland Energy Management um I just wanted to speak to you know solar development I'm a renewable energy developer um things have have really changed and can continue to change as uh more and more projects are permitted um some of the new things that a lot of projects are doing uh fits under the definition of agrivoltaics um in the sense that there are portions of these projects that can still be utilized to harvest um different types of agriculture while not necessarily real crops um other types like uh barley uh bean peppers that sort of thing um in addition we often utilize sheep herding as a form of vegetation control so that's in a sense um another form of agrivoltaics and finally when the project's operating it's essentially the land being laid fallow the same way that you would see uh a CRP parcel um so there's no massive grading uh or laying of gravel or anything outside of our perimeter roads um so it would essentially be CRP lands with solar modules on top of them in the racking system in addition I wanted to touch on decommissioning requirements um our site control agreements all have decommissioning and remediation requirements that we're bound to in addition to us our financing partners are also bound to those commitments as well um also in a lot of CUP processes uh municipalities often request bond requirements so we'll put aside funds to uh finance the decommissioning in the event that uh the project trades hands there's money that's been set aside prior to permitting the project that will finance the decommissioning of the project um so at the end of the lifetime there are there are monies in county hands to provide for decommissioning of the project um in addition there's no concrete that's used with the pylon so it's a relatively easy decommissioning process and the um the salvage value of the project itself will often finance the decommissioning of the project or exceed the value of the decommissioning costs um finally these projects provide for replacement generation for retiring thermal thermal generators uh there's a thermal generator that's nearby that's actually half retired and it's under lawsuit with the Sierra Club to be retired it's one of MidAmericans dirtiest in their coal fleet so these projects provide for New Generation that keeps power prices low for the public um as thermal generators are retired and that's it for me thank you.

Doyle Turner (Moville) (18:36 to 21:32) - https://youtu.be/Me_SPKOFaHM?si=o7Zwkdc9ej80rqla&t=1116

Doyle Turner 2738 200th Street Moville um one of the main things that I think we really need to be cognitive is that we have a development plan that is really close to being done and and I have talked to some of the Supervisors and I I do know that some of them are thinking that it would be wise to wait until that development plan is done due to just the total number a of the acres that are involved in something like this it's not like a conditional use where you're looking at one property and how one property affects the neighborhood we're we're looking at changing the outlook of a significant portion of our county and I think that considering the laws that whenever you get into litigation or anything like that you always go back to that development plan and I I think it really be would be wise to not not necessarily delay this but to not get the cart ahead of the horse and to get this done after the development plan is done the other thing that I'd like to bring up is is people talk about the income derived off of this from tax revenue um it's not an apples to apples to compare this to property tax revenue because it doesn't create revenue from property tax it creates revenue from the electricity that is produced um there the MidAmerican has requested from the IUB to look into um nuclear those those small nuclear uh power plants um so what we have is the main asset that these companies are looking at are the transmission lines you know they're worth more than the land is I mean you're looking at probably a 5 billion transmission line and that's what they're after and we have to also be cognitive that this is only going to really utilize 20 to 25% uh of capacity in the fact that these don't produce electricity all the time and we don't want to get in a position where we short change ourselves um an opportunity to produce electricity 95 to 100% of the time compared to 20 to 25% of the time so when you are comparing when you are looking at a possible revenue stream you have to compare apples to apples and you have to compare that this is not fully funding our transmission lines so I you know I I think the overlay is is something that is worth looking at but not until after the comprehensive map has been developed thank you.

Christopher Widman (Bronson) (21:55 to 24:43) - https://youtu.be/Me_SPKOFaHM?si=0xv00StpVTDfdF8L&t=1315

Christopher Whitman my address is 1866 220th Street Bronson Iowa um I'm a fifth generation farmer um I love the county and it's a roots and I hope to pass my farm someday on to my kids um I'm not opposed to industrial solar in the county by any means but I don't think it has a place um on ag preservation land that these big and solar industrial solar complexes that I

mean they need to stay on the industrial land we have a planning zoning department and committee that basically they're here to tell us hey you know if I went there and I wanted to build on my land they would be like no there's an industrial park go by land there and build there not how about let's rezone your ag land to build on it so I think the county is doing its 20-year development plan and as they do that like they need to take into consideration we can increase these big so like if we want solar in the county how about let's increase our industrial parks and expand them a little not cherry pick out in the middle of the county for a few land owners that have come in front of you that say hey we need to expand this um I think it just doesn't like it doesn't seem consistent to you know have all of these land owners come that already have signed contracts with you guys like the county is supposed to develop their plan based on a land development plan that is not part that it's supposed to be with the best the general welfare of the county not a few so like if we start making these changes based on what these individuals have came here and asked for and they're trying to change things so these individuals that have signed contracts get their land to go in it then I think the county has a big legal issue because we're going to be going after them saying you capitulated to these people with their own interest and that was not in the general warfare of the county so I would say let's wait till the 20-year plan is done I don't think that there's a place for overlay on ag land let's expand the industrial parks and tell the land owners go buy the industrial land don't try to use your ag to make industrial profits the last thing I would like to enter into the record are a few questions for you guys that if you could answer them by the next meeting or whatnot um and then there's an article in here and a listing of everybody that has uh land easement signed in the county thank you.

Elizabeth Widman (Bronson) (25:23 to 27:05) - https://youtu.be/Me_SPKOFaHM?si=XJxydJdjOKbmAZyZ&t=1523

My name's Elizabeth Widman again 1665 220th Street Sergeant Bluff um I'm a landowner and um I would just like to urge you like some other people to delay your decision until the new Woodbury County Comprehensive Plan is finished um I understand that they're working on it right now and have been working on it and um the reason for this is because um as residents of Woodbury County um that is protection for us it gives guidelines as to what the county is going to do moving forward um what's expected instead of just having uh oh surprise somebody came and now we're going to have this this uh solar utility farm next to a place that you've been developing and you like the the view etc and um um I appreciate the job you're all doing appreciate the jobs the supervisors are doing but this is a comprehensive plan that lasts for 20 years and boards come and go people come and go but that's what's in place that gives guidance uh to the county and um so again I I believe that utility solar belongs an industrial ground it is not um Agricultural and I believe that the comprehensive plan is called an agricultural preservation district uh for a reason that's to pre preserve agricultural land and I just um like I said would like to urge you to delay this until the their development plan is finished thank you.

Tom Treharne (NextEra Energy) (27:21 to 31:47) https://youtu.be/Me_SPKOFaHM?si=XZBiGC-bMALZdLHY&t=1641

This is Tom with Nextera can you hear me. Zellmer Zant: Yes please go ahead. Thank you sorry um I just wanted to to ask if is there a recommended um proposal or a recommendation coming out of staff or which which way to proceed or are all of them up for just for discussion at this point? Priestley: there's three concepts that are out there for discussion um that are fluid uh one is the conditional use for the general industrial, the second is the overlay uh district scenario that's been discussed, and the third is the uh comprehensive plan as part of a background to uh look at that because we're uh toward the end of that or in that process as well so those three things but there is uh language in the backup material that has the conditional use and the overlay District language in there that's fluid and being discussed but there's no concrete direct uh one pointed at at this point. Treharne: okay thank you I've read through all the options and um you know just from a a development perspective um certainly appreciate the time that's spent and you know as a as a developer of a project you know we we respect and and really appreciate the time that you guys are looking at and would would work towards being able to build a project we would just ask is the development language is is put together um you know some of the setbacks the thousand foot setback from residential dwellings it's that's that makes really makes for some serious challenges on a project as well as some of the grading language specifically limiting it to 5% and so um you know just depending on how uh you know the the ordinance moves forward and what proposal we're looking at those are some those are two considerations that um um would would be difficult for for us and we like to see something changed I I know there's a lot of conversation as well as it relates to industrial ground and the development of solar in the industrial properties um solar solar development is is is while some may consider the used to be industrial in nature the the fact that you would be developing solar on large pieces of property that are being geared for uh industrial development would would not be the greatest ideal greatest situation considering you know you build industrial ground you're You're building streets and roads and sewer and water and a whole host of of public utilities and public infrastructure to serve industrial tax base and industrial facilities that employ people at a large scale and and are adding value in a very urban on area the the value that that comes from from a solar development is the taxes um to the county and and there's not a lot of uh investment in in public utilities or infrastructure to support that so pointing all of your solar

development to industrial uh property um creates a whole host of of of problems that that I would see in the future anyway I I do think the overlay district is a is a great way to go uh solar uh can be uh very um similar and like to to an ag use I know some folks don't like the way it looks um but I think that traditionally that's how the regulations have been been cast in the past I know for you know Linn County is moving forward with that and appreciate the work that's been done to take a look at that and the scorecard for Woodbury as well so um just I wanted to just address those those couple items and and um you know I'd be just looking forward to how the board or the commission um reviews what's being proposed and and and takes action in the future so thank you for your time.

Roger Brink (Onawa) (31:54 to 32:33) - https://youtu.be/Me_SPKOFaHM?si=Tm_sUTI8AAqeioii&t=1914

My name is Roger Brink from Onawa Iowa I've been hearing a lot of comments about needs to stay into the agricultural ground but yet the government is paying CRP ground to lay it aside and people's got trees growing up 6 feet 7 feet tall and then they go in there and spray them it looks a lot worse than what the solar panels will -- we got three solar panels project in the county already that they don't seem to bother too many people thank you.

Leo Jochum (Salix) (33:14 to 37:50) - https://youtu.be/Me_SPKOFaHM?si=iOue6GQZ1CSIIPQZ&t=1994

Leo Jochum 1691 250th Street at Salix I think option two would be the best of these three options that we've discussed I think it is important that the overlay designation keeps farmland in the AP zone so that when the solar release expires the farmland will be returned to agricultural production I do have a concern with the qualifying CSR2 of 65 or less the majority of the farmland east of 75 has a CSR1 rating between 45 and 55 which increased between 20 and 34 points in 2014 when the precipitation factor was removed I'm in favor of removing that as a qualifying factor during the Iowa Utility Board's application process the soil conservation service NRCS and the DNR will be involved with grass and plant selection to ensure the soil quality will be preserved which will make the transition back to agriculture production possible in the ordinance under rough draft under H ground cover and buffer areas this references some of the practices that are listed in the Solar SC scorecard prior to construction soil sampling will be done to create a baseline for fertility but in addition to that soil probing will also be used to determine the type and the characteristics of the soil this is used to determine the size and the gauge of the tubing and the proper depth to place the steel tubing that supports those brackets there isn't any concrete put in the ground for this no concrete to support the tubes and no blacktop under the panels the method of installation allows for a very efficient and minimal soil disturbance for the removal of the solar array at the expiration of the solar contract which will allow for a smooth transition back into the agricultural production now I would like to address just a little bit about setback proposals and I I hope that the separation distance will be compatible with placement of the panels uh the occupied residence setbacks that I have seen are usually in the 150 to 300 foot setback from a residence in addition there's usually a landscaping or screening plan put in place that I also see in the proposed ordinance the city also has a jurisdiction of two miles and I don't know if this little issue on the bottom is contemplating having a county ordinance of two miles towards the city so I don't know if that would interfere and does the county have current setbacks from like a road right away and is that what we should be using like if it's 50 or 60 feet from the road white right away um want to make a comment on uh the 2005 planning um 3.4 is protecting Prime Farmland is determined by a corn suitable rating over 65 CSR if we use that CSR one which they are using right here that's going to put most of these lands that they'll have to be under an 85 to qualify so that's why this csr2 is important that was time okay thank you thank you I do have um some information I'm this is just kind of review of what you had before but it's going to reinforce what I said tonight okay.

Naomi Widman (Bronson) (37:59 to 41:18) - https://youtu.be/Me_SPKOFaHM?si=DmHOG7irVIwDpMzj&t=2279

I'm Naomi Whitman um 1866 220th Street um I just want to thank you guys I don't envy your position at all so thank you for the work and time that you guys are putting into this I know it's a lot um I do I do want to make one comment um as we consider people's um thoughts and opinions um I think we need to consider the motivations as well um when we are looking at what they're saying information that they're giving us um and just what their motivation behind it might be um I am not opposed to solar energy at all I think it has its right place um I I am concerned about granting an overlay for select areas that are not even close to industrial areas um in ag preservation land I think that like it's been mentioned multiple times that there's a 20-year plan that's nearly complete that we've been working on um I definitely think we should delay until that's completed before we consider anything um as far as granting overlay I it's important that we have the best interest of the Gen like general community and the county in mind versus catering to particular individuals who have honestly a very significant financial interest in receiving an overlay so it it data has shown that land values surrounding solar complexes decrease um particularly residences and so when we are looking at that I I feel like people should have freedom to decide what happens on

their land to a certain extent um when that starts negatively impacting surrounding land owners um um that's where our governing bodies are obligated to step in and make regulations and um that's that's just how life works really so I think when we when we are making decisions we need to think about the um general welfare what is um in the best interest of them I don't think it's any secret there's easements that have been signed there are very small select individuals um that will profit from that I think if we just grant overlays not thinking about what's in the best interest of everyone in this surrounding area um it seems to show a lot more favoritism versus okay what as Woodbury County we're developing what do we want to do what what is best for the county as we move forward um and everyone who resides in this county um so I I would think if we want to expand solar which I'm not opposed to it all I think that we can we can look at that we can we can um consider that but I don't think cherry picking little parcels in the middle of ag preservation land is probably the best way to go about go about that so I would just um encourage the Zoning Commission the Board of Supervisors um just to consider their role in making decisions for the best interest of the county um and not particular individuals thank you.

Steve Corey (Salix) (41:25 to 43:13) - https://youtu.be/Me_SPKOFaHM?si=jZ2fQJ6KtL_5gcAe&t=2485

Steve Corey 1757 290th Street Salix. Um my concern is in speaking to some of the uh the city leaders of the town of Salix um they're pretty much in the dark right now on this whole project um looking at the map and the land that is being proposed for this uh the community is kind of penned in uh from the south southwest corner the whole east side running up you know going north towards Sergeant Bluff um I never imagined living here in Northwest Iowa that I was going to have to be dealing with carbon sequestration, wind farms, and now solar in the middle of the county to boot um I I I never thought I'd have to to deal with that as a resident of the state and the county and the community um it's it's a real Challenge and they all all three of these particular uh proposals are coming you know want to come through this County as most of you are aware not only that but none of them work without the taxpayer being involved in this that bothers me um if you have to subsidize it to make it work does that make sense on the backs of the American taxpayer considering what we're all dealing with today regarding inflation and what's happening to all of our to all of us when it comes to uh how we put bread on the table so um there's a lot of of things that need to be considered here not only that but the the agriculture land itself and where in the county and the future and what is our County going to look like um because once we open this Pandora's Box um you know how that goes right anyway thank you for your time.

Greg Jochum (Salix) (43:53 to 47:24) - https://youtu.be/Me_SPKOFaHM?si=On6BgTy_bmAhPcdA&t=2633

Greg Yokum uh 1629 270th Street um I feel very fortunate to be part of production agriculture a lot of consolidation took place in the 1980s during the farm crisis which gave way to producers selling their livestock and continuing to farm and taking a job in town to some extent we have that today as a growing number of farms become more automated using artificial intelligence and other smart technologies to boost performance energy production could be the next step to enhancing land use I am confident that in the future of our family operation could consist of pork production corn production soybean production and energy production the corn and soybeans that I raise on my farm right now the corn goes to ethanol plants with which is energy the soybeans go to AGP which in turn the soybean oil gets turned to biodiesel another form of energy with solar on the farms that I have will produce energy that can also be used locally I'm in favor of using the overlay district in the AP zone for utility solar the infrastructure is already there with two 345 KV lines and two 161 KV lines uh these go through my Farms that I've been farming around since I came back in 2000 my dad's been farming around them when he bought his first Farm in the 60s I'm also in favor of using so the solar scorecard versus the CSR rating the meeting in Moville I discussed to you about the difference between CSR2 and CSR1 the scorecard will also encourage a more desirable diverse native grass flowering plants and pollinators the soil conservation service is also involved in determining the best seed mix for preserving and improving the soil the scorecard will also encourage dialogue between the solar developer and the non-participating neighbors and land owners the supervisors on September 26th recommended that no more than 1% of farmland every four years be allowed for utility solar I agree with that as it is it will give the county officials time to analyze and make adjustments where they see needed when my dad retired I took over the family farm with me I'm a fifth generation farmer and this spring my nephew graduated college he came to work for me this summer he's showing interest in the farm and I also have a 12-year-old son that I hope will be the sixth generation taking over our farm was that my time that was your time gr all right thank you thank you.

Rebekah Moerer (Sioux City) (48:48 to 50:14) - https://youtu.be/Me_SPKOFaHM?si=DrcbehX89hnfWLXp&t=2928

My name is Rebecca Moerer I live at 3437 Nebraska Street here in town um I have a couple questions as a county taxpayer I'm wondering what the benefit of these solar farms are to people who live in town or if it's a benefit just to the people who

own the land um my other question is what are the exact costs that um would be assessed to taxpayers uh they talked about decommissioning these and it it wouldn't take much but it sounded like there would be an expense who pays for that um I feel solar farms are an industry and should be subject to the way um industrial land use restrictions are already set up um when I purchased my house I checked into solar and I was told I'd have to cut a tree down um I would have to get a second mortgage the cost would be over $20,000 and I would only save about 25% of my energy bill I also looked up um the largest solar farms in Iowa and three to four of those are only on buildings none of those are on eggs and the the largest one is in Washington, Iowa so I thought that was very interesting um so that's just my take on it thank you.

Staff Analysis

Woodbury County currently allows for the consideration of utility-scale solar energy systems in the General Industrial (GI) Zoning District with the use of the conditional use permit application process through the Zoning Commission for review and the Board of Adjustment for approval. The current debate is about whether to expand the opportunity for utility-scale solar on land in the Agricultural Preservation (AP) Zoning District.

Under the current regulations, if a property owner desires to install a utility-scale solar system on his or her property, they would check with the county and the respective zoning district would be identified. If the property were within the AP Zoning District, the proposal would not be allowed as it is designated as a “prohibited use” in the “Land Use Summary Table” (Section 3.03.4, p. 32) of the Woodbury County Zoning Ordinance. However, the landowner does have the right under the ordinance to request for their district to rezoned to a designation that could facilitate utility-scale solar such as the GI Zoning Distrist. Typically, there are instances that can hinder the rezone process including incompatibility with the comprehensive plan, it’s future land use map and the concept of spot zoning which could fall under compatibility with adjacent land uses, etc.

The Zoning Ordinance Map Amendment (Rezone) process within the zoning ordinance includes the following evaluation criteria as part of the review and decision-making by the Zoning Commission and Board of Supervisors. As per Section 2.02.4 D (p. 12), the Commission shall base their recommendation and the Board of Supervisors shall base their decision of the following criteria:

- Conformance with the goals and objectives set forth in the approval General Development Plan for Woodbury County including the Future Land Use Map;
- Compatibility and conformance with the policies and plans of other agencies with respect to the subject property;
- Consideration of the Corn Suitability Rating (CSR) of the property;
- Compatibility with adjacent land uses;
- Compatibility with other physical and economic factors affecting or affected by the proposed rezoning; and
- Any other relevant factors.

These criteria place emphasis on the comprehensive plan and its future land use map as a mechanism for determining whether or not a particular area of land is acceptable for a different set of land uses or zoning district. With this criteria, it could be challenging for a landowner in the middle of AP Zoned ground to switch the land to industrial through the rezone process if the requested area for a rezone is designated as agricultural on the future land use map. It could be difficult to meet the corn suitability rating and the compatibility with adjacent land uses. Hence, spot zoning could come into play which is defined in the zoning ordinance as:

> An arbitrary zoning or rezoning of a small parcel of land, usually surrounded by other uses or zoning categories that are of a markedly or substantially different intensity, that is not consistent with the comprehensive land use plan, and that primarily promotes the private interest of the owner rather than the general welfare. This term is not used within these regulations, but is included here because it is commonly used to describe proposed rezonings, which may or not actually be spot zoning. (Woodbury County Zoning Ordinance, p. 92)

It is essential to point out that Woodbury County's comprehensive plan entitled, *Planning for 2025, A General Development Plan for Woodbury County*, includes policies not limited to the following that speak directly to the present debate:

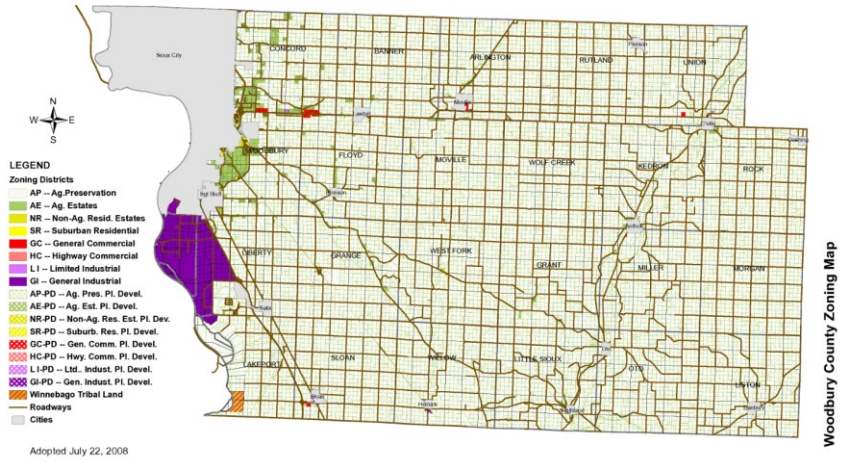
- **Economy and Economic Development Policy 2.5:** Fully explore alternative renewable energy sources, particularly wind generation facilities both as a contribution to the total energy needs of the country and as a new source of income for property owners.
- **Agricultural Policy 3.4**: Protect prime farmland as determined by high corn suitability ratings (i.e., over 65 CSR) from conversion to other land uses. Discourage non-agricultural uses in prime farmland areas and other agricultural districts by providing residential lot size requirements and proper separation distances between residential and agricultural uses.
- **Conservation and Environmental Policy #7.2:** Establish grading standards that create stable development sites, minimize erosion and sedimentation and water runoff. These standards may encourage conservation of less developable sites, particularly in the steeper slopes of the Loess Hills.
- **Conservation and Environmental Policy 7.3:** Establish standards and practices to encourage preservation of environmentally sensitive areas such as wetlands, wooded areas, waterways (streams, ponds, lakes, rivers, etc.), and other amenities."

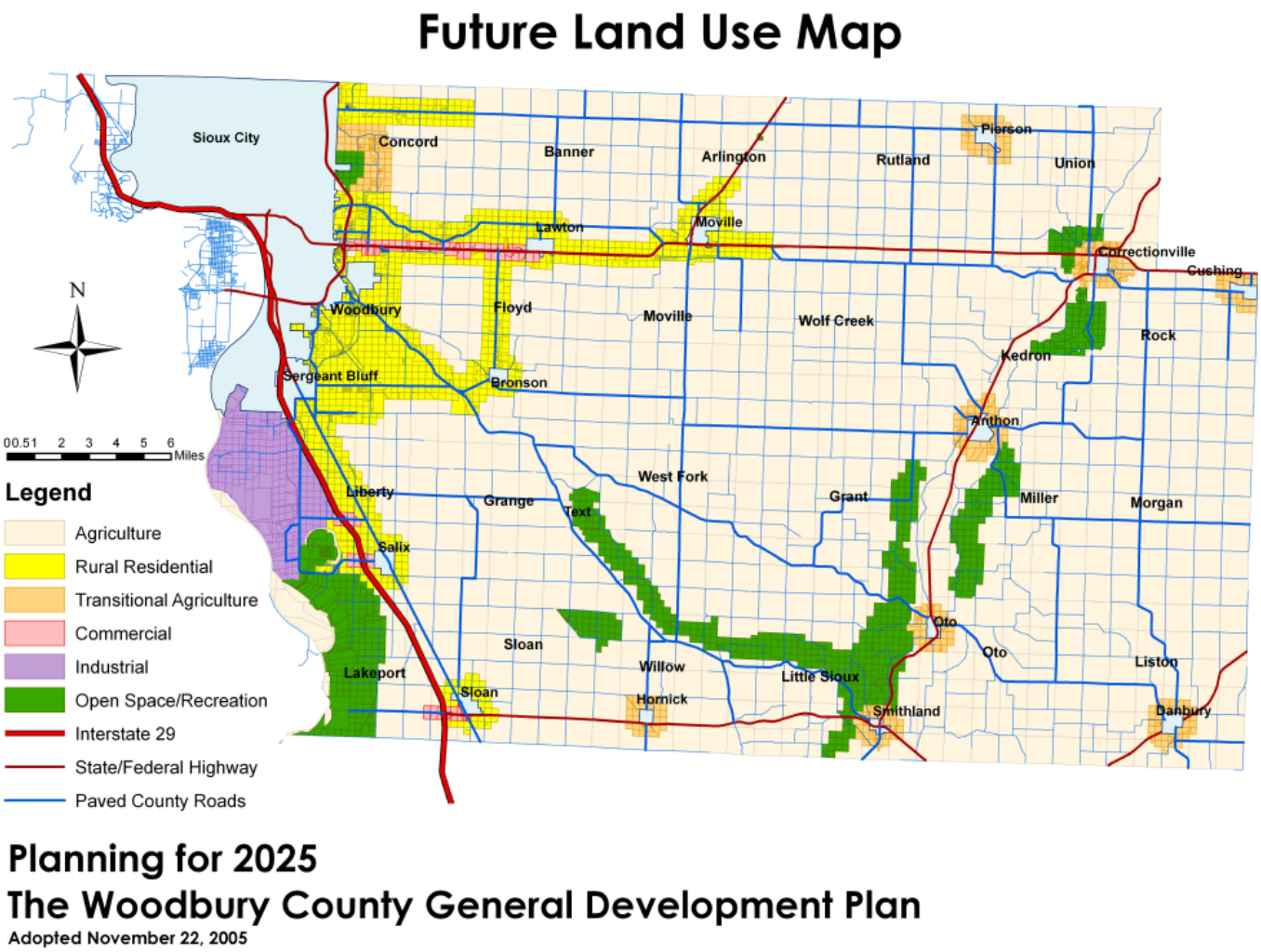
The Zoning Map and the Future Land Use Map of Woodbury County, as established in 2005, includes an abundant number of areas prioritized for agriculture. According to GIS data on file with Woodbury County and compiled by the Woodbury County Secondary Roads Department, the Zoning Districts are divided into the following acreage allotments:

Zoning District	Acres
Agricultural Preservation (AP)	476,513
Agricultural Estates (AE)	7,556
General Industrial (GI)	11,221
Limited Industrial (LI)	101
General Commercial (GC)	2,032
Suburban Residential (SR)	623

*Data compiled by Woodbury County Secondary Roads on 9/11/23 from Woodbury County Assessor's data.

Zoning Map of Woodbury County, Iowa





As referenced in the October 23, 2023, backup materials for the Zoning Commission, if the comprehensive plan and/or its associated future land use map does not support a rezoning change, it is typically not recommended to proceed with the change to the zoning district. If there is desire to consider such a rezone, as required by ordinance, the development plan and map should be considered as part of the review process. With this being said, the regulations on the books signal that back in 2005, the residents of Woodbury County made it a priority to have a process in place that put full scrutiny as to whether agricultural should or should not be used for other land uses and converted to different districts.

Under the current comp plan there is support for both renewable energy and agricultural land uses. The future land use map and the districts established in the zoning ordinance have placed requirements for where both can co-exist. In fact, Section 1.02.2 J of the zoning ordinance does reference "promoting conservation of energy resources and reasonable access to solar energy." Consequently, Woodbury County decided in 2008 to allow for electrical energy generation (not including wind) to be placed only as a conditional use permit opportunity in the General Industrial (GI) Zoning District. Additionally, this use was designated as prohibited in every other zoning district. This designation can be construed as the county's consensus at the time to place utility-scale solar assets in industrial areas over agricultural.

It is apparent that Woodbury County, based on the current comp plan, future land use map, and the parameters of existing ordinances are equipped to facilitate both agriculture and solar. As noted, there are opportunities for solar to be considered in GI. There are also opportunities for agriculture to be continued long-term in AP. However, due to the large majority of the unincorporated area being under the AP designation, it is

inevitable that there would be a desire to uses some AG land areas for utility-scale solar purposes. This is where the debate begins as to which areas within agricultural zoned land are appropriate or not for utility-scale solar energy systems.

As noted previously, the Board of Supervisors revised their direction to the Zoning Commission on September 26, 2023 to include the following concepts in mind as part of a future recommendation:

- A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.

Each of the criteria presented by the Board of Supervisors are feasible with the possible concepts subsequently presented in this report. It is important to note that the proposals presented are rough drafts and are subject to changes due to the inevitability of learning more information. The draft proposals do provide for the concerns of the neighbors, land/soil, and other factors as part of the permit approval. Under the concepts presented then landowners within one (1) mile would be notified about the proceedings which could include public hearings about the Zoning Commission, Board of Adjustment and Board of Supervisors level depending if it is for the overlay district or the conditional use. The consideration of slope is included by the institution of a requirement for a geotechnical report submitted by a professionally licensed engineer qualified in the field of geotechnical engineering to assess the potential risk of slope instability or landslide for the proposed development in its existing and post developed state. Additionally, the Commission may consider to recommend a specific cap on acres allowed to be converted to the overlay district with a time frame.

Gleanings From Literature, Public Testimony, and the Realities of the Issue

The scope of the utility-scale solar energy systems debate is wide and cumbersome. On topic after topic, it becomes inevitable to be trapped into the weeds of issue identification and formulation. The fallacy or the missing portion of this debate is specifics. The known is that utility-scale solar systems are allowed in industrial areas. The unknown is if the industrial areas are not the desired location for potential developers and landowners, thus - where are the proposed areas?

Throughout this debate over the last six plus months, the public has been in the position of wondering where potential renewable energy projects might go? In the board sense, the proposal to develop utility-scale solar in the AP Zoning District could be construed to suggest that somewhere within the 476,000 plus areas of AP land.

For land use public policy to be clear, it is inherently essential to debate land use with the most rational set of facts as possible. In a world of limited rationality, the comprehensive plan and the development of the future land use map is a platform for entire communities to work toward consensus on the type of communities they want to be in the future. The comprehensive plan adoption process is the most appropriate junction for setting land use goals for the next 20 to 40 years. It is imperative that the principals of transparency be injected into this debate with proposed areas where utility-scale solar energy systems may or may not be appropriate. Based on the current comprehensive plan, industrial areas are appropriate for utility-solar and agricultural areas are not.

Both the public and energy developers have been monitoring the utility-scale solar energy debate in unincorporated Woodbury County. All groups have been requested to comment on the matters. Supporters of expanded utility-solar have offered information to assist county officials with the siting of these projects through best practice documentation and sample ordinances. However, up to this point, there has not been a specific

request to elaborate on why a specific or particular area is desirable for these systems. Without this missing piece, the county appears to be on a large-scale debating whether it is a “yes” or a “no” on 476,000 acres of agricultural land, without zooming into the local areas of the county where utility-solar might indeed be appropriate.

Based on the literature it appears there are areas where developers prefer to place systems whether it is in proximity to transmission lines or other essential assets. As for the discussion of overlay districts, these concepts are helpful and can be appropriate for addressing unique land uses that may not necessarily fit with the underlaying zoning districts use. They allow for innovation to address the growing development needs of a community in terms of land use. Thus, it would be helpful for this debate to advance forward if areas the areas of interest were debated publicly through the comprehensive plan future land use map adoption process.

The enumeration of areas that may be appropriate for utility-solar offer the public and developers the transparency and clarity desired. Chasing a policy without knowing the affected locations is counterintuitive to the long effectiveness of the policy. The utility-scale solar energy debate would be best served by a direct focus on public input during the final stages of the adoption process of the Woodbury County Comprehensive Plan 2040. In particular, input should be considered concerning possible changes to the future land use map for either additional industrial areas or locations acceptable for an overlay district.

As part of the comprehensive plan process, the establishment of a renewable energy policy focused on either industrial expansion or the validation of an overlay district over agricultural land would be a reasonable step for a long-term stable land use policy. Thus, the focus on Concept #1 could offer justification for Concept #3 if the public offers broad support for utility-solar and the overlay district. Without the comprehensive plan debate, it is the recommendation of staff to adopt Concept #2 which is the retention of the current policy with a revision to the conditional use permit process in the GI Zoning District. The Zoning Commission and the Board of Supervisors may also consider adoption a variant of Concept #3. The three concepts are as follows:

1. **Comprehensive Plan Debate.** Use the opportunity for the new comprehensive plan to consider the public’s receptiveness to the renewable energy initiatives. This debate is an opportunity for developers, landowners, and the general public to make a determination of the type of county, Woodbury County wants to be over the next 20 plus years. This debate can be used to map out the areas where utility-solar could be expanded outside of industrial areas. Comprehensive planning is laying out the expectations for land use in the long term which can add stability and clarity for all stakeholders.

2. **Retain the current policy and revise the conditional use permit process.** Woodbury County does not prohibit utility-scale solar energy systems. Like many local jurisdictions, the county placed priority by creating a designated area, General Industrial (GI) that is ready and waiting for developers to jump at the opportunity to site their projects on this land. Revise the conditional use permit requirements to include additional standards related to agreements with the county for decommissioning and other issues.

3. **Establish a Utility-Scale Solar Energy Systems Overlay District.** Create a utility-scale solar energy systems overlay district which includes a protocol with maximum stakeholder involvement. Include both the Woodbury County Zoning Commission and the Board of Supervisors (BoS) in the rezone consideration process where the Commission makes a recommendation to the BoS who determine whether the area is appropriate or not. Establish a set number of acres (cap) from the AP Zoning District that the overlay can serve. Set the criteria to include CSR2 and/or an evaluation scorecard. Another issue that could be addressed at some point is the consideration of utility-scale solar battery systems. Possibly language is included in this report for informational purposes. Battery systems could be separated into a different debate or included within the current discussions.

Summary Of Concept 1. Comprehensive Plan Debate

Woodbury County is currently in the process of organizing a new comprehensive plan ("plan"). Since early 2021, the plan has been in development but has been placed on hold. At this time, the County is at a convenient juncture to evaluate whether renewable energy sources continue to be a development priority for the county over the next decade and beyond. The current debate considering the appropriateness of utility-solar systems being placed in areas of the county other than industrial naturally fits into the comprehensive plan adoption process.

The current plan that has been in place since 2005, acknowledges renewable energy sources in its Economy and Economic Development Policy 2.5 which states "fully explore alternative renewable energy sources, particularly wind generation facilities both as a contribution to the total energy needs of the county and as a new source of income for property owners" (p. 19). However, the plan also includes the initiative to protect prime farmland. In particular, Agricultural Policy 3.5 states "protect prime farmland as determined by high corn suitability ratings (i.e., over 65 CSR) from conversion to other land uses. Discourage non-agricultural uses in prime farmland acres and other agricultural districts by providing residential lot size requirements and proper separation distances between residential and agricultural uses" (p. 20).

The priorities of a community are embodied in a comprehensive plan to serve as a guide or a rationale for basing land use decisions. Iowa Code 335.1-3 states the following as it pertains to comprehensive plans:

1. The regulations shall be made in accordance with a comprehensive plan and designed to preserve the availability of agricultural land; to consider the protection of soil from wind and water erosion; to encourage efficient urban development patterns; to lessen congestion in the street or highway; to secure safety from fire, flood, panic, and other dangers; to protect health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to promote the conservation of energy resources; to promote reasonable access to solar energy; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. However, provisions of this section relating to the objectives of energy conservation and access to solar energy shall not be construed as voiding any zoning regulation existing on July 1, 1981, or to require zoning in a county that did not have zoning prior to July 1, 1981.
2. The regulations shall be made with reasonable consideration, among other things, as to the character of the area of the district and the peculiar suitability of such area for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such county.
3. The regulations and comprehensive plan shall be made with consideration of the smart planning principles under section 18B.1 and may include the information specified in section 18B.2, subsection 2.

Following the adoption of the General Development Plan: Planning for 2025 on November 22, 2005, the county established a revised Zoning Ordinance and Subdivision Ordinance that were adopted on July 22, 2008. Subsequent to adoption, the Zoning Ordinance has been amended numerous times as it takes an amendment to the Zoning Ordinance to change any zoning district from one designation to another. The most recent amendment occurred with the approval of Ordinance No. 75 which was a Zoning Ordinance Map Amendment (rezone) from the Agricultural Preservation (AP) Zoning District to the Agricultural Estates (AE) Zoning District.

The process of amending the ordinance, as was the case with Ordinance No. 75, requires a look at the priorities within the comprehensive plan. Is it appropriate or not to introduce a particular use onto property designated as agriculture? The current plan tells the community that Woodbury County has a priority to explore renewable energy sources. It also has an initiative to protect prime farmland by use of the Corn Suitability Rating. In 2005, when then this plan was developed, it also included a "Future Land Use Map" that illustrates the areas within the county that the public expects particular uses to be allowed or not allowed. Portions of the county were designated as agricultural, rural residential, transitional agriculture, commercial, industrial, and open space/recreation.

In 2008, a land use summary table was adopted within the Zoning Ordinance that directly enumerates the priorities of land use in the county. The public, appointed officials, and elected officials at that time, decided that electrical energy generation (not including wind) is a prohibited use in all zoning districts except for the General Industrial (GI) Zoning District. To be clear, this decision reflects the comprehensive plan. It shows the public is

open to renewable energy, however, it demonstrates that the public chose the industrial areas as the most suitable locations to be considered through the conditional use process.

With a future comprehensive plan in the works and ready for debate before the Zoning Commission and Board of Supervisors, staff offers this concept as a pathway for considering the renewable energy priorities of the county. Within the comprehensive plan debate, the public can request expansion of the industrial areas or renewable energy overlay areas for the placement of renewable energy assets. Therefore, it is feasible to explore expanding areas on the future land use map which in turn could facilitate the rationale for an ordinance amendment to rezone additional areas for uses such as utility-scale energy.

Summary of Concept 2. Retain the current policy and revise the conditional use permit process

- **Summary:** Retain the current permitting procedures in the Woodbury County Zoning Ordinance but add additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public.
    - **Zoning District:** General Industrial (GI)
    - **Permitting Mechanism:** Conditional Use Permit
    - **Review Board:** Zoning Commission
    - **Approval Board:** Board of Adjustment
    - **Notification Area:** One (1) mile from Project Area
    - **Development Plan Justification:**
        - Compatible with Economy and Economic Development Policy 2.5:
            - "Fully explore alternative renewable energy sources, particularly wind generation facilities both as a contribution to the total energy needs of the country and as a new source of income for property owners."
        - Compatible with Agricultural Policy 3.4:
            - "Protect prime farmland as determined by high corn suitability ratings (i.e., over 65 CSR) from conversion to other land uses. Discourage non-agricultural uses in prime farmland areas and other agricultural districts by providing residential lot size requirements and proper separation distances between residential and agricultural uses."
        - Compatible with Conservation and Environmental Policy 7.3:
            - "Establish standards and practices to encourage preservation of environmentally sensitive areas such as wetlands, wooded areas, waterways (streams, ponds, lakes, rivers, etc.), and other amenities."
        - Compatible with Conservation and Environmental Policy #7.2:
            - "Establish grading standards that create stable development sites, minimize erosion and sedimentation and water runoff. These standards may encourage conservation of less developable sites, particularly in the steeper slopes of the Loess Hills."

Brief Background:

- The Woodbury County Zoning Ordinance facilitates the permitting for utility-scale solar energy systems as a conditional use in the GI Zoning District. Presently, the Zoning Commission reviews the application and then makes a recommendation to the Board of Adjustment. Under this policy, utility-scale energy systems are construed as an industrial activity and have been placed into the industrial area of the county to ensure that productive farm ground can remain in production. The Zoning Ordinance facilities the opportunity to rezone to the GI Zoning District in order for a conditional use permit to be considered. However, the rezone process requires consideration of the following criteria:
    - Conformance with the goals and objectives set forth in the approved General Development Plan for Woodbury County including the Future Land Use Map;

- Compatibility and conformance with the policies and plans of other agencies with respect to the subject property;
- Consideration of the Corn Suitability Rating (CSR) of the property;
- Compatibility with adjacent land uses;
- Compatibility with other physical and economic factors affecting or affected by the proposed rezoning; and
- Any other relevant factors

- **Spot Zoning** is defined in the Zoning Ordinance as "An arbitrary zoning or rezoning of a small parcel of land, usually surrounded by other uses or zoning categories that are of a markedly or substantially different intensity, that is not consistent with the comprehensive land use plan, and that primarily promotes the private interest of the owner rather than the general welfare. This term is not used within these regulations, but is included here because it is commonly used to describe proposed rezonings, which may or not actually be spot zoning.

- If the development plan and/or its associated future land use map does not support a rezoning change, it is not recommended to proceed with the change in zoning district. If there is a desire to consider such a rezone, the development plan should be revisited, debated, and be considered for amendment(s) to the text of the plan or future land use map.

- It is imperative to note that multi-acre utility-solar sites can reduce the amount of available land in the General Industrial (GI) areas for other developmental purposes. Acres taken out for utility-solar could impact the benefits of services ran to industrial areas such as sewer and water.

Summary of Concept 3. Establish a Utility-Scale Solar Energy Systems Overlay District

- **Summary:** Establish a utility-scale solar energy systems overlay zoning district that requires a rezone application to be reviewed by the Zoning Commission and considered for approval by the Board of Supervisors that must meet specific criteria for the appropriateness of the agricultural area to facilitate utility-scale solar systems. Another issue that could be addressed at some point is the consideration of utility-scale solar battery systems. Possibly language is included in this draft for informational purposes. Battery systems could be separated into a different debate or included within the current discussions.
  - **Proposed Zoning Districts:** Establishment of a "Utility-Scale Solar Overlay Zoning District" to be used only over the "Agricultural Preservation (AP) Zoning District.
  - **Permitting Mechanism:** Rezone to Overlay
  - **Review Board:** Zoning Commission
  - **Approval Board:** Board of Supervisors
  - **Notification Area:** One (1) mile from Project Area
  - **Development Plan Justification:**
    - Compatible with Economy and Economic Development Policy 2.5:
      - "Fully explore alternative renewable energy sources, particularly wind generation facilities both as a contribution to the total energy needs of the country and as a new source of income for property owners."
    - **As per Concept #1**: Use the opportunity for the new comprehensive plan to consider the public's receptiveness to the renewable energy initiatives. This debate is an opportunity for developers, landowners, and the general public to make a determination of the type of county, Woodbury County wants to be over the next 20 plus years. This debate can be used to map out the areas where utility-solar could be expanded outside of industrial areas. Comprehensive planning is laying out the expectations for land use in the long term which

can add stability and clarity for all stakeholders.

- **Possible Criteria:**
  - **Rezone to "Utility-Scale Solar Overlay Zoning District"**
    - Zoning Commission makes a recommendation to the Board of Supervisors as to whether the rezone to the overlay district is appropriate or not.
      - Establish a criteria to qualify an area as acceptable or not for the overlay district: CSR2?; Slope; Acre Cap; Density/Setbacks, No floodplain, agricultural use, etc.
    - Board of Supervisors approves the rezone process including approval of specific agreements with the county such as decommissioning, road use, etc.

- **Background:**
  - Both Linn County and Scott County use an overlay district to facilitate the permitting of utility-solar in agricultural areas. Linn's overlay district is known as the "Renewal Energy Overlay District" while Scott's is a "Utility Solar-Floating District." They use the rezone process to switch the footprint of a solar project area to the overlay district. The effect is creating an area for solar but retaining primary uses of the base zoning district.
  - Specifically, Linn County's ordinance states that "the renewable energy overlay district shall be geographically located in those areas currently zoned AG (Agricultural) or CNR (Critical Natural Resources)." The intention of Scott County's floating district is to find a balance that keeps in mind the characteristics of the abutting properties and area, and other matters such as habitat, natural resources, agricultural preservation, safety, health, and general welfare. Scott County's ordinance makes it clear it is not their intention to allow for utility solar on prime agricultural land.
  - This concept of an overlay district could be an option for a balanced policy in Woodbury County. For example, the county could establish a "Utility-Scale Solar Overlay Zoning District," and enumerate standards that must be met in order to rezone the property to the overlay district while retaining all the existing uses of the base zone.
  - On page 28 (33 of the PDF) of the Zoning Ordinance, Woodbury County does have an example of the "CD -- Conservation Development Overlay Zoning District". A "CD" can be instituted as an overlay over other districts such as AP, AE, NR, and SR. Also, see page 17 (22 of the PDF) which uses the rezone process.
  - Based on what Linn County and Scott County have done, this could be a feasible option to have the debate at the Board of Supervisors level as to whether a particular area of ag land would be suitable or not for utility solar.
  - The overlay district is designed to not be a spot zone but a way to look at the unique nature of an area for a special use without changing the base zone or the controlling zoning district's land use requirements. Thus, if a solar farm is removed, it would revert back to the base use of the controlling zoning district or be considered for future conditional use permitting if a new solar system were to be proposed.

Concept 1 - Comprehensive Plan Adoption Process

As noted in the summary above, the current comprehensive plan (comp plan) on the books offers support for renewable energy, however, the policies including the zoning ordinance that came out of that process established industrial areas as the appropriate locations for electrical energy generation while protecting agricultural land with the Corn Suitability Rating (CSR). Woodbury County is currently at a convenient juncture to transfer this utility-scale solar debate into the final stages of the comp plan adoption process that will be going before the Zoning Commission and the Board of Supervisors in 2024.

It is essential to note that the institution of a comp plan is a countywide discussion to determine what the development priorities are for Woodbury County over the next 20 years. It is a time to ask what type of county do we want to be? What are the goals for agriculture? Land Use? Economic Development? Commercial? Industrial? Residential? Parks? Recreation? Conservation? Environment? Public Safety? Transportation? Facilities? Operations? This debate about utility-scale solar is consequential and fits in with the public's long-range decisions about the type of county that we want to be. The discussion gives those who are in support or those who are opposed to the expansion of solar, in agricultural areas, a voice in the setting of countywide policy. Depending on how solar policy is ultimately crafted, this debate could potentially include access to over 475,000 acres of agricultural land.

If through the planning process, renewable energy is shown as a top priority by the public, the opportunity is ahead for the public to offer input about what "areas of land" are suitable for industrial expansion through the comp plan's future land use map. Below is a copy of the current future land use map. The areas shaded in light green are planned for agriculture. Through the consideration process, the public could offer input or make specific requests on which areas may or may not be suitable for utility-solar. Additionally, through the debate, the public could request the expansion of residential, commercial, and industrial areas to facilitate future needs.

Current Land Use

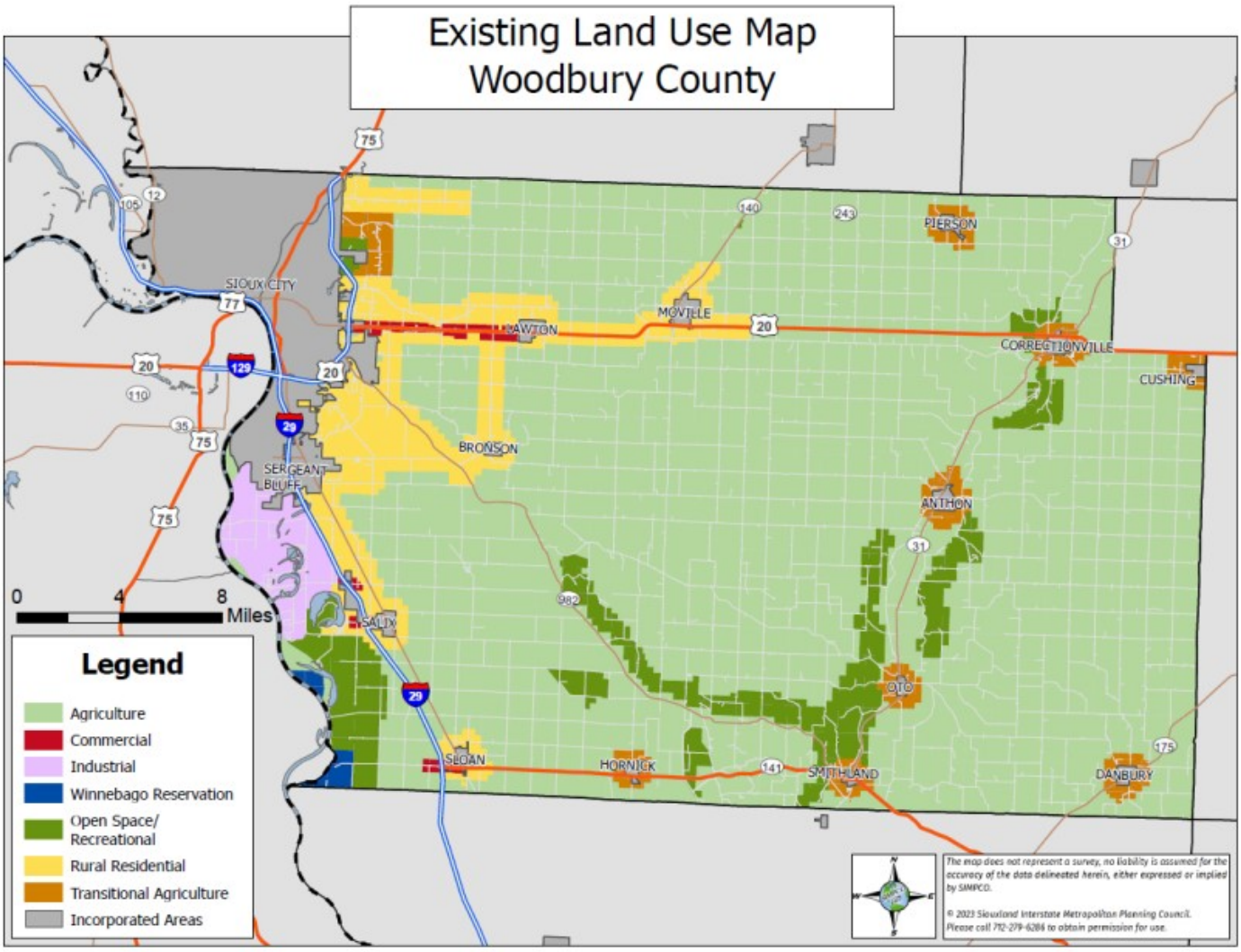


Figure 7.2. Existing Land Use Map, 2023.

Source: Current Land Use. *Draft Woodbury County Comprehensive Plan 2040.* https://simpco.org/wp-content/uploads/2023/05/Draft_Woodbury-County-Comprehensive-Plan_5.2.23.pdf

At this time, it is absolutely essential to note that the draft comp plan has been in development over the past three (3) years and through the public engagement process in that timeframe, there has <u>not</u> been large-scale public support for renewable energy development. As of this date, the future land use map that has been presented to the public has not substantially changed from the current map. If specific requests have been made for a particular area to be expanded, those requests would have been considered and would likely have been included in the future map. The draft future land use map is included below:

Future Land Use

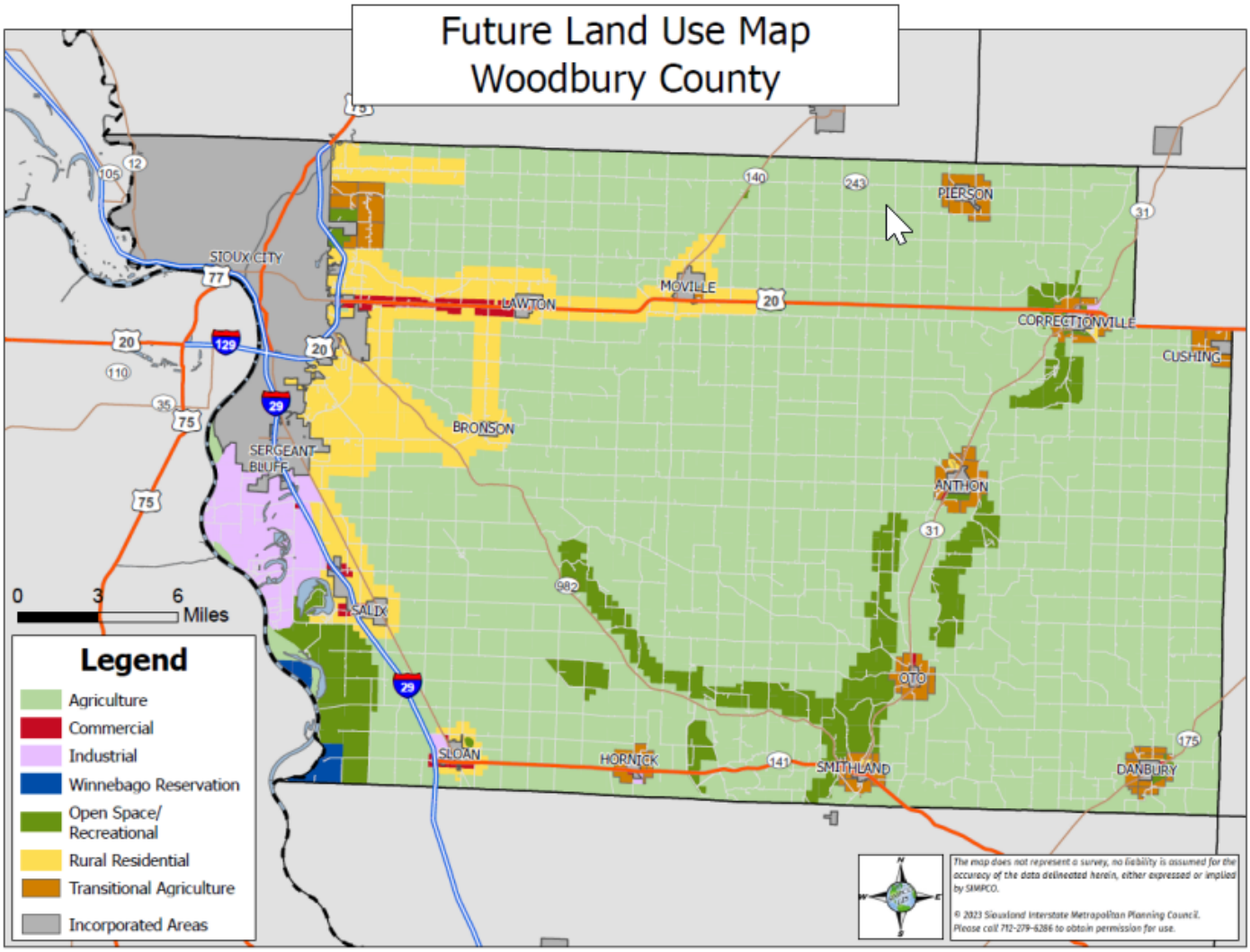


Figure 7.4 Future land use map

Source: Future Land Use. *Draft Woodbury County Comprehensive Plan 2040.* https://simpco.org/wp-content/uploads/2023/05/Draft_Woodbury-County-Comprehensive-Plan_5.2.23.pdf

Below is an excerpt from page 70 of the **draft** *Woodbury County Comprehensive Plan 2040*:

> **Renewable Energy**
> There are currently no wind facilities located in Woodbury County, and many residents have been vocally opposed to these developments due to the impact wind facilities would have on the county's rural landscape.
>
> At the same time, there is a great deal of federal support for shifting the energy source of the electric grid away from carbon-based fuels in favor of renewable options such as wind and solar. Due to a variety of federal and state financing programs, tax incentives, and funding opportunities, the network of wind turbines is growing throughout the country, state, and region. Tax credits are also incentivizing the installation of solar voltaic energy systems on private property. With these considerations, it is likely that the county could see demand from landowners for renewable energy developments in the future, as these facilities could present an economic opportunity for farmers and other landowners.
>
> While wind turbines are largely unpopular in Woodbury County, renewable energy technologies are changing rapidly. The method of energy production and aesthetic form of wind and solar technologies are likely to continue developing over the next 20 years. With further development such technologies could become more appealing and less intrusive to residents. Supporting the development of diverse energy sources and planning ahead for regulations around these facilities will put the county in a position to embrace those that are appealing to residents and beneficial to the economy.

Access Link: https://simpco.org/wp-content/uploads/2023/05/Draft_Woodbury-County-Comprehensive-Plan_5.2.23.pdf

The above language is not in stone and the public retains the ability to offer comments during the debate process. If during the discussions, there is support for utility-solar solar energy systems for the future in Woodbury County, it would contribute to the justification for future policy changes.

If the public desires to create additional industrial areas on the comprehensive plan's future land use map, an overlay district would not be necessary as the existing rezone process could likely facilitate the application process to rezone from AP to GI.

Concept 2 - Retain The Current Policy And Revise The Conditional Use Permit Process

Retaining the current policy and revising the conditional use permit process would entail adding a new section to the ordinance to address the permitting expectations. The following outlines shows concepts that could be integrated into a utility-scale solar energy systems conditional use permit for the General Industrial (GI) Zoning District. This same language could also be adapted to coincide with Concept 2.

Zoning Ordinance Text Amendment Outline – Add the following:

Section 5.08: Utility-Scale Solar Energy Systems (US-SES) Conditional Use

1. Statement of Intent
2. Jurisdiction
3. Definitions

A. Agrisolar or Agrivoltaics
B. Applicant
C. Community Solar
D. Conditional Use Permit (CUP)
E. Concentrating Solar Power Systems
F. Corn Suitability Rating 2 (CSR2)
G. Critical Slope Angle
H. Developed Project Areas
I. Easement
J. Feeder Circuits/Lines
K. Glare/Glint
L. Ground-Mounted System
M. Interconnection
N. Module
O. Mounting
P. Non-Participating Landowner
Q. Occupied Structure
R. Operator
S. Owner
T. Participating Landowner
U. Photovoltaic (PV) Cells
V. Professional Engineer
W. Project Area
X. Property Line
Y. Residence
Z. Setback
AA. Slope
BB. Solar Array
CC. Solar Collector
DD. Solar Easement
EE. Solar Energy
FF. Solar Energy Systems, Private
GG. Solar Energy Systems, Utility Scale (US-SES)
HH. Solar Panel
II. Solar Storage Battery
JJ. Solar Storage Unit
KK. Solar Thermal Energy System (STES)
LL. Structure
MM. Structure-Mounted Energy System
NN. Substation
OO. System Height
PP. Transmission Lines

4. Applicability
5. Conditional Use Permit (CUP)
6. Application Materials
    A. Identification Information
    B. Legal Control Documentation
    C. Certified Abstractors Listing
    D. Plat of Survey
    E. Legal Descriptions
    F. Development Plan
        (1) Project Timeline
        (2) Site Plan
        (3) North Scale
        (4) Property Lines

(5) Setback Locations
(6) Right-of-Way Locations
(7) Parking, etc.
(8) Easements
(9) Total Number of Arrays
(10) Locations / Dimensions
(11) Electric Lines
(12) Field Tile
(13) Well
(14) Sanitary Infrastructure
(15) Topography
(16) Flood Zone
(17) Other Info
(18) Structure Plans
(19) Separation Distances
(20) Setback Analysis
(21) Grading Plan
(22) Geotechnical Report
(23) Floodplain Data
(24) Utility Plan
(25) Landscaping/Screening Plan
(26) Road Impact Analysis
(27) Interconnection Agreement
(28) Operation and Maintenance Plan
(29) Decommissioning Plan
(30) Agricultural Impact Mitigation Plan
(31) Vegetative Management Plan
(32) Wildlife/Biological Habitat Assessment & Mitigation Plan
(33) Setback analysis
(34) Emergency Response Plan
(35) FAA / Other Permits
(36) Other Information

7. Site and Structure Requirements
    A. Setbacks
        (1) Protected Areas
            1. Adjacent Property Lines
            2. Occupied Residence
            3. Unoccupied Non-Residential Building
            4. Public Road Right-of-Way
            5. Public Drainage District Right-of-Way
            6. Public Conservation Area
            7. Cemetery
            8. Airports
                (1) Setback Waivers
    B. Height
    C. Screening
    D. Utility Connections
    E. Grading Plan
    F. Glare Minimization
    G. Compliance with local, state and federal regulations.
    H. Appurtenant Structures
    I. Floodplain Considerations
    J. Fencing/Security
    K. Panel Height
8. Permitting Process

   A. Meeting
   B. Department Coordination
   C. Board of Supervisors Approval of Agreements
   D. Conditional Use Permit Application
   E. Outlined Uses
9. US-SES Building Permit Requirement
10. Woodbury County Road Use and Repair Agreement
11. Woodbury County Public Drainage System Protection Agreement
12. Operation and Maintenance Plan
13. Decommissioning, Abandonment, Escrow Account, and Site Restoration Plan
14. Soil erosion and Sediment Control Plan
15. Emergency Response Plan
16. Future Operators
17. Severability
18. Penalty
19. Effective Date

The following pages include the draft ordinance as outlined above.

Section 5.08: Utility-Scale Solar Energy Systems (US-SES) Conditional Use

1. **Statement of Intent.** The purpose of this Section is to facilitate the construction, installation, and operation of Utility-Scale Solar Energy Systems (US-SES) in Woodbury County, in a manner that promotes economic development, protects property values, and ensures the protection of health, safety, and welfare while also avoiding adverse impacts to important areas such as agricultural lands, conservation lands, and other sensitive lands.

   If this Section conflicts with any other provision of the Woodbury County Zoning Ordinance, this Section shall control.

2. **Jurisdiction.** This Ordinance is adopted by the Woodbury County Board of Supervisors and governs all lands within the unincorporated areas of Woodbury County, Iowa. This Ordinance and its provisions shall not apply to those properties or projects occurring within the incorporated cities of Woodbury County.

3. **Definitions.** For use in this Ordinance, certain terms or words used herein shall be interpreted or defined as follows:

   A. **Agrisolar or Agrivoltaics.** A utility-scale solar system co-located on the same parcel of land primarily adapted, by reason of nature and area, for use for agricultural production, including crop production, grazing, apiaries, or other agricultural products or services. Fifty-one percent (51%) of the use of the land is for agricultural purposes.

   B. **Applicant.** The person or entity submitting the application under this Ordinance, which is normally expected to be the owner or operator of a US-SES, or the owner of the US-SES development.

   C. **Community Solar.** A utility-scale solar energy system developed by a municipality, utility, or other third party that typically allows community members to subscribe to the project.

   D. **Conditional Use Permit (CUP).** A use that is allowed in conformance with the regulations of the zoning district in which it is located, if and only if, approved by the Board of Adjustment as provided in subsection 2.02-9. A CUP issued by the Woodbury County Board of Adjustment is required before associated building permit(s) can be issued in unincorporated Woodbury County.

   E. **Concentrating Solar Power Systems.** A system that generates solar power by using mirrors, lenses, or similar reflecting surfaces to concentrate sunlight collected over large areas onto smaller focal areas. Concentrating solar power systems are prohibited.

F. **Corn Suitability Rating 2 (CSR2).** An index to the inherent soil productivity of each kind of soil for row crop production. The index is scaled from 100, for the most productive soils, to 5 as the least productive.

G. **Critical Slope Angle.** The maximum slope incline which the soil and rock materials underlying the slope can support, without failure, under existing climate, vegetation, and land use.

H. **Developed Project Areas.** The total project area that is subject to an agreement between the Owner/Operator and the Participating Landowner and is actually developed and utilized for placement of a US-SES.

I. **Easement.** A legal agreement for the use of property for a specified purpose.

J. **Feeder Circuits/Lines.** A power line or network of lines used as a collection system that carries energy produced by a solar energy system to an interconnection point like a substation. Feeder circuits are most often placed underground.

K. **Glare/Glint.** Light reflected off of a surface.

L. **Ground-Mounted System**. A system where a rack(s) of panels is mounted on concrete posts or poles anchored in the ground and are wired or plumbed to an adjacent home or structure.

M. **Interconnection.** Link between a generator of electricity and the electric grid. Interconnection typically requires connection via infrastructure such as power lines and a substation, as well as a legal agreement for the project to be connected to the grid.

N. **Module.** An individual unit comprised of multiple photovoltaic (PV) cells, with multiple modules used in a solar energy system.

O. **Mounting.** The method of anchoring solar energy system modules to the ground or a building.

P. **Non-Participating Landowner**. A landowner who has not signed a binding agreement with the Applicant/Developer/Owner of the US-SES project.

Q. **Occupied Structure.** For the purpose of this ordinance, shall include any existing occupied house, apartment, barn, or machine shed regularly used by the property owner, or parties in possession of the property at the time of the permit application.

R. **Operator.** The entity or individual that operates a solar energy system.

S. **Owner.** The entity or entities with an equity interest in the US-SES, including their respective successors and assigns. Owner does not mean the landowner from whom a lease, easement, or other property right is acquired for locating the US-SES unless the landowner has an equity interest in the US-SES, or any person holding a security interest in the US-SES solely to secure an extension of credit, or a person foreclosing on such security interest provided that after foreclosure, such person seeks to sell the US-SES at the earliest practical date.

T. **Participating Landowner**. A landowner under lease, easement or other binding property agreement with the applicant, developer, or owner of the US-SES.

U. **Photovoltaic (PV) Cells.** Semiconductors which generate electricity whenever light strikes them; generally grouped on panels.

V. **Professional Engineer.** A qualified individual who is licensed in the State of Iowa as a professional engineer.

W. **Project Area.** The geographic area encompassing all components of a US-SES project, including border fencing.

X. **Property Line.** The legal boundary between separately owned real estate parcels, and between privately owned parcels and public owned land or public right of way.

Y. **Residence.** A house, apartment or other shelter that is the abode of a person, family, or household and regularly occupied.

Z. **Setback.** The minimum distance from a certain object, structure or point to the edge of any part or component of the US-SES.

AA. **Slope.** The inclination of the land surface from the horizontal, with the steeper and longer having the most erosion potential.

BB. **Solar Array.** Equipment used for private or utility scale solar energy systems. Can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure.

CC. **Solar Collector.** A device, structure or part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.

DD. **Solar Easement.** An easement created to protect a solar project from encroachment by adjacent properties which would shade panels. See Iowa Code 564A.

EE. **Solar Energy**. Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

FF. **Solar Energy Systems, Private.** An energy system that converts solar energy to usable thermal, mechanical, chemical, or electrical energy primarily for immediate onsite use that already has an existing principal use on the same parcel. Solar Energy Systems, Private shall be allowed only as a non-utility scale accessory use to a permitted principal use. Surplus energy sold back to a utility must comply with all applicable laws including but not limited to Section 199, Chapter 15.11(5) of Iowa Administrative Code, and all requirements of the Iowa Utilities Board. Systems can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure.

GG. **Solar Energy Systems, Utility Scale (US-SES).** An energy system, commonly referred to as a "solar farm", which converts solar energy to useable thermal, mechanical, chemical, or electrical energy primarily for transmission through the electrical grid for offsite use or wholesale and/or retail sale. Systems can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure. Utility scale solar energy systems do not include concentrating solar power (CSP) systems.

HH. **Solar Panel.** 1) A grouping of photovoltaic cells used to generate electricity directly from sunlight. A grouping of these panels is called an array. 2) A panel circulating water or other liquid through tubes to collect, transfer and store the sun's heat for domestic hot water and building heat.

II. **Solar Storage Battery.** A device that stores energy from the sun and makes it available in an electrical form.

JJ. **Solar Storage Unit.** A component of a solar energy deice that is used to store solar-generated electricity or heat for later use.

KK. **Solar Thermal Energy System (STES).** A system that directly heats water or other liquids using sunlight. The heated liquid is used for such purposes as space heating and cooling, domestic hot water, and heating pool water.

LL. **Structure.** Anything constructed or erected on the ground or attached to the ground, including but not limited to, antenna(s), buildings, sheds, cabins, residences, signs, storage tanks, towers, wind turbines and other similar objects.

MM. **Structure-Mounted Energy System.** A system where photovoltaic panels or solar thermal panels are mounted on racks attached to the roof or side-walls of a building. Panels can be flush-mounted or angled for optimal sun exposure.

NN. **Substation.** A facility that converts electricity produced by a generator like a solar energy system to a higher voltage, allowing for interconnection to high-voltage transmission lines.

OO. **System Height.** The height of a solar energy system, usually referring to ground mounted systems. Total system height is the measurement from the ground to the top of the mounting or modules associated with a system.

PP. **Transmission lines.** Power lines used to carry electricity from collection systems or substations over long distances.

4. **Applicability.** It shall be unlawful to construct, erect, install, alter or locate any US-SES within unincorporated Woodbury County, without first obtaining a Conditional Use Permit from the Woodbury County Board of Adjustment and the associated agreements from the Woodbury County Board of Supervisors as outlined in this Ordinance.

    A. No application for a US-SES Conditional Use Permit shall be granted without first submitting all required information and documentation, and paying all associated fees to the County.

5. **Conditional Use Permit (CUP).** US-SES shall require a Conditional Use Permit within the General Industrial (GI) Zoning District. This use is prohibited in all other Zoning Districts in Woodbury County. This use shall be subject to the procedures and standards included in the Woodbury County Zoning Ordinance unless otherwise stated in this Section. Concentrating solar power systems are prohibited.

6. **Application Materials.** In addition to all submittal requirements of a conditional use application in Section 2.02.9, the application for a US-SES installation shall include the following information on the site plan or in narrative form, supplied by the utility scale installation owner, operator or contractor installing the structures:

    A. The name and address of the applicant, as well as the proposed owners or operators of the project, including the contact information (name, address, telephone and email) of their authorized representatives. The application shall designate the entity who would be the permit holder of the conditional use permit and building permit.

    B. Documentation of the applicant's legal control over the private property necessary for the project, signed by the property owner. Such legal control must vest in the permit holder of the Conditional Use Permit at the time of its issuance.

    C. A certified abstractor listing of the names and mailing addresses of all owners of real property lying within one (1) mile from the subject property shall be provided with the application.

    D. A plat of survey showing the parcels on which the utility-scale solar structures and associated assets will be included in the project area.

E. Legal descriptions of all properties, leased and/or owned, identified to be part of the project area.

F. A Development Plan including:

(1) Project timeline. Project timeline showing how the site will be developed from beginning to end.

(2) Site plan. A professionally prepared site plan drawn to scale shall showing the location and spacing of every solar panel/array, all other facilities to be constructed and associated with the project, and all existing assets located in the project area. Specifically, the site shall include:

(3) North arrow and scale.

(4) Property lines and physical dimensions of the project area.

(5) Setback locations from the property line locations clearly marked for the applicable Zoning District.

(6) Location of the right-of-way.

(7) Location and layout of vehicle parking, loading and queuing areas, street accesses, and driveways.

(8) Easements present on the property including those for utilities.

(9) Total number, location and spacing with dimensions (length, width, & height) of solar panels/arrays and all other supporting structures including the distances from the property lines and other structures.

(10) Location with dimensions (length, width, & height) of existing structures and distances from the property lines and other structures.

(11) Location of underground and/or overhead electric lines.

(12) Location of field tile.

(13) Location of well.

(14) Location of the sanitary infrastructure (e.g. – Septic tank and system).

(15) Location of topography lines (2 foot contours).

(16) Flood hazard area designations.

(17) Such other information as the Zoning Director may require to determine compliance with the provisions of this and other Woodbury County Ordinances.

(18) Structure Plans. Architectural and/or engineer plans and specifications prepared pursuant to the acceptable professional standards.

(19) A map showing the separation distances of the project area from adjacent property lines; occupied residences; unoccupied non-residential buildings; public rights-of-way; public drainage districts; public conservation areas; cemeteries; city limits; airports (public and private); lakes; and permanent water courses.

(20) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.

(21) Grading plan. This plan shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.). The plan shall include soil erosion and sediment control considerations and storm water management practices as referenced in this Ordinance. A storm water pollution prevention plan (SWPPP) and permits from the Iowa Department of Natural Resources and other applicable government bodies must be submitted.

(22) Geotechnical report. A site-specific geotechnical report shall be submitted by a professional licensed engineer qualified in the field of geotechnical engineering, registered in the State of Iowa, and prepared in accordance with generally accepted geotechnical and environmental engineering practices to assess the potential risk of slope instability or landslide for the proposed development in its existing and post developed state.

(23) Floodplain data. Development within the Special Flood Hazard Area (SFHA) shall comply with federal, state, and local regulations. Proposals for the US-SESOD shall include base flood elevation data for the footprint of the project area. Proposals shall also include the elevation of the proposed development site (natural ground).

(24) Utility plan. Planned location of all utilities, including underground or overhead electric lines.

(25) Landscaping/Screening plan. Planned location of all plants and screening.

(26) Road Impact Analysis. An inventory of the existing road network to be utilized for construction and maintenance of the facility and details on how the project will impact those roads over the life of the project, including during installation and decommissioning.

(27) Interconnection agreement. Provide the interconnection agreement with the utility company.

(28) Operation and Maintenance Plan.

(29) Decommissioning plan.

(30) Agricultural Impact Mitigation Plan.

(31) Vegetative Management Plan.

(32) Wildlife/Biological Habitat Assessment & Mitigation Plan.

(33) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.

(34) Emergency Response Plan.

(35) Any Federal Aviation Administration (FAA), or other federal, state, or local permits or approvals that are necessary for the project. Applicant shall submit a copy of the actual permit, or proof that the permit has been filed with the appropriate agency.

(36) Such additional information as the County may request due to the unique circumstances with the project. Applicants are encouraged to have on-going discussions with the county zoning staff, county engineer, and other associated county departments during the preparation of the application.

7. **Site and Structure Requirements.**

A. **Setbacks.** All US-SES and any upgrades to existing solar energy systems shall observe the following setbacks, to be measured from the edge of the solar panels and equipment (not underground facilities such as cable or fencing):

Protected Area TBD	**Setback Requirement TBD**
Adjacent Property Lines	50 feet* ?TBD
Occupied Residence	1000 feet ?TBD
Unoccupied Non-Residential Building	100 feet ?TBD
Public Road Right-of-Way	50 feet ?TBD
Public Drainage District Right-of-Way	100 feet ?TBD

Public Conservation Area	1 mile ?TBD
Cemetery	600 feet ?TBD
Airports (public and private)	FAA consultation and determination required. ?TBD

* US-SES to be built on more than one parcel and parcels are abutting, a zero (0) side or rear setback shall be permitted to the property line in common with the abutting parcel(s).

(1) Setback Waivers. Property owners and municipalities may require a waiver from the setbacks as established in this Section, except for the following protected areas: airports, cemeteries, public conservation areas, and public road rights-of-way

PROVIDED, a waiver shall not alter any other non-waived setback requirement.

To effectuate such a waiver, the applicant must provide the Zoning Director with a recordable instrument signed by all owner(s)(or the controlling governmental entity) of the affected protected area that specifically identifies the nature and extent of the waiver. All waivers must be reviewed by the Board of Supervisors for compliance with this Section; and if deemed compliant, it shall be recorded in the office of the Woodbury County Recorded by the applicant. No waiver shall be granted for setbacks less than the required minimums for the Zoning District.

B. **Height.** A solar panel shall be no less than two (2) feet (Twenty-Four inches) off the ground. A solar panel shall not exceed twenty (20) feet in height above grade at maximum tilt of the solar panel(s).

C. **Screening.** Project shall provide vegetative screening for all dwellings within 1,000 feet of the project boundaries.

(1) Applicant shall submit a screening plan for each dwelling within 1,000 feet of the project boundaries.

(2) Screening may be waived by the owner of a dwelling. Waiver must be in writing and recorded.

(3) Screening may be waived by the Board of Adjustment upon submission of a viewshed study from the applicant demonstrating that the project is not within the viewshed of the dwelling due to topography, existing vegetation, or other factors. The point of reference used in the viewshed study shall be as close to the dwelling as possible.

(4) Any vegetative screening within the project boundaries shall be maintained throughout the life of the project by the project owner. Any

screening on the dwelling property shall be maintained by the project owner for no less than twelve months.

(5) Deciduous trees shall have a minimum caliper of 1.5" when planted, shall be at least six (6) feet tall within three (3) years of installation, and shall have a minimum mature height of twelve (12) feet.

(6) Screening plans shall use no less than two varieties of tree.

D. **Utility connections.** Reasonable efforts shall be made to place all utility connections from the solar installation underground, depending on appropriate soil conditions, shape and topography of the site, distance to the connection, or other conditions or requirements.

E. **Grading plan.** A grading plan shall be submitted and shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.).

F. **Glare minimization.** All solar panels must be constructed to minimize glare or reflection onto adjacent properties and adjacent roadways and must not interfere with traffic, including air traffic, or create a safety hazard.

G. **Compliance with local, state and federal regulations. Utility** scale solar installations shall comply with applicable local, state and federal regulations.

H. **Appurtenant structures.** All appurtenant structures shall be subject to bulk and height regulations of structures in the underlying zoning district.

I. **Floodplain considerations.** Utility scale solar installations are considered to be maximum damage potential structures and facilities for purposes of the floodplain district regulations.

J. **Fencing/security.** A security fence must be installed along all exterior sides of the utility scale solar installation and be equipped with a minimum of one gate and locking mechanism on the primary access side. Security fences, gates and warning signs must be maintained in good condition until the utility scale solar installation is dismantled and removed from the site.

K. **Panel Height.** To encourage the establishment of a diverse native seed mix, panels shall be installed a minimum of 24" from the lower edge of the panel at maximum tilt to the ground.

8. **Permitting Process.** The applicant shall go through the following process prior to, during, and after the conditional use permit consideration process.

A. Applicant shall meet with the Zoning Director and submit all required documents.

B. Zoning Director will submit all documents to the Woodbury County Department Approval Committee. Committee shall consist of the Woodbury County Board of Supervisors and the Zoning Director along with the department head or the designated employee from the following departments: Woodbury County Conservation, Woodbury County Engineer/Secondary Roads, Woodbury County Emergency Management, Woodbury County Emergency Services. All identified departments must approve with signature that all requirements pertaining to that department are met prior to moving on in the process.

C. The Woodbury County Board of Supervisors shall review and consider for approval or denial the following agreements and plans prior to final approval by the Board of Adjustment:

(1) Woodbury County Road Use and Repair Agreement

(2) Woodbury County Public Drainage System Protection Agreement

(3) Operation and Maintenance Plan

(4) Decommissioning, Abandonment, Escrow Account, and Site Restoration Plan

(5) Soil Erosion and Sediment Control Plan

(6) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project

(7) Emergency Response Plan

Final approval of the US-SES Conditional Use Permit shall not proceed until the Board of Supervisors has approved these agreements and plans and the Chairman and the applicant have executed these agreements.

D. Conditional Use Permit Application will be presented to the Woodbury County Zoning Commission for review and the Woodbury County Board of Adjustment for a public hearing and decision on the Conditional Use Permit as per the requirements in this Ordinance and Section.

E. The use(s) outlined in the application shall be established in accordance with the draft plans considered by the Board of Adjustment within five (5) years of approval. “Commencing Construction” is determined by disturbance of soil at project site, that is not part of a primary farming operation. Any portion of the development plan not completed within five (5) years of approval by the Board of Adjustment shall not be installed until the development has been reauthorized by the Board of Adjustment. Reauthorization shall be subject to the regulations in effect at the time reauthorization is requested.

9. **US-SES Building Permit Requirement.** In addition to the requirements of the Conditional Use Permit, each US-SES project must obtain an approved US-SES Building Permit by the Board of Supervisors prior to the start of any construction. An approved US-SES Building Permit shall be valid for 24 months from the date of its issuance. The Zoning Department will supply a US-SES Building Permit application form to be used by any person or entity seeking to construct a US-SES project. The application shall contain:

    A. The name and address of the application, as well as the proposed owners or operators of the project, including the contact information (name, address, telephone and email) of their authorized representatives. The application shall designate the entity who will be the permit holder of the US-SES Building Permit.

    B. A Final Development Plan for the project, which shall contain aerial images of the entire proposed project area, showing the approximate proposed location of the solar arrays, private access roads, feeder lines, substations and all other components of the project. The Plan shall show property lines and setback distances, as well as all public roads and public drainage district facilities (i.e. – ditches and underground tiles) in the project area. The Plan shall also identify any wind turbines, communication antennae, and airports (including private airstrips) located within five (5) miles of the project area; and all lakes, permanent water courses and Public Conservation Areas within three (3) miles of the project area boundaries. In providing the above information, the Plan shall use a GPS coordinate system that is compatible with the County's geographical information and data systems. The Plan shall also include a mailing address for the owner of each communication antenna identified.

    C. Project details, including the name of the project, the final number of arrays, generating capacity, and all the requirement of the Conditional Use Permit application as included in this Section.

10. **Woodbury County Road Use and Repair Agreement**

    A. **Roads.** Applicants shall adhere to the Woodbury County Road Use and Repair Agreement, and in doing so, shall identify all roads to be used for the purpose of transporting solar components, substation parts, cement, and/or equipment for construction, operation or maintenance of the solar installation and obtain applicable weight and size permits from the impacted road authority prior to construction.

    B. **Existing Road Conditions.** Applicants shall conduct a pre-construction survey, in coordination with the impacted local road authorities to determine existing conditions of roads identified pursuant to Section 5.08.10(B). The survey shall include photographs or video and written documentation of the condition of the identified road facilities. The applicant is responsible for on-going road maintenance and dust control measures identified by the County Engineer during all phases of construction.

11. **Woodbury County Public Drainage System Protection Agreement**

    A. Applicants shall adhere to the Woodbury County Public Drainage System Protection Agreement, and in doing so, shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of WECS (where required).

12. **Operation and Maintenance Plan.** The applicant shall submit a plan for the operation and maintenance of the solar installation including all necessary services, frequency of service, preventative maintenance measures, and monitoring. The operation and maintenance plan should include at a minimum:

    A. Preventative maintenance practices and schedules for all on-site equipment including but not limited to: inverters, panels, equipment pads, tracking systems, transformers, access entrances, internal roads, gates, fencing, security systems, stormwater management installations.

    B. Annual reporting and verification to county on the status or changes to ongoing service schedule.

    C. Schedule of all other monthly, annual, or semiannual reporting requirements for other submittals including: agricultural impact mitigation plan, decommissioning plan, and vegetation management plan.

    D. Noise. No operating solar energy equipment shall produce noise exceeding any of the following limitations, with the exception of initial construction and routine maintenance. Adequate setbacks and effective noise mitigating equipment shall be used to comply with these limitations:

        (1) An hourly average noise level of fifty-five (55) dBA during the day (between sunrise and sunset), and an hourly average noise level of fifty (50) dBA at night (between sunset and sunrise), as measured at the occupied dwelling of any adjacent property containing an existing residential structure. If the ambient sound pressure level exceeds 55 dBA during the day or 50 dBA at night, the standard shall be the ambient Leq (equivalent continuous sound pressure level) plus 5 dBA.

        (2) A baseline noise evaluation shall be completed by a board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE) prior to construction of the proposed solar site.

        (3) A post-construction noise evaluation shall be performed by a third-party board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE) following commencement of commercial operation of the project to verify

compliance with the County's standards.

(4) The owner(s) of an adjacent property may voluntarily agree, by written and recorded waiver, to a higher noise level.

E. Issue resolution protocols. Contact information for responsible party to address issues that may arise (damaged equipment causing excessive noise, etc.).

F. Disposal/recycling plan for damaged or obsolete facility equipment or hazardous waste. No storage of inoperable or obsolete equipment shall be allowed to remain on-site. Site operator shall be responsible for the cleanup of debris related to storm damage.

G. Cleaning chemicals and solvents. During operation of the proposed installation, all chemicals or solvents used to clean photovoltaic panels should be low in volatile organic compounds and the operator should use recyclable or biodegradable products to the extent possible. Any on-site storage of chemicals or solvents shall be referenced.

H. Maintenance, repair, or replacement of facility. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to emergency response officials. Any retrofit, replacement or refurbishment of equipment shall adhere to all applicable local, state and federal requirements.

I. Repowering. Proposals to replace more than twenty five percent (25%) of the panels in a facility within a twelve (12) month period will be required to submit a new conditional use permit application based on the requirements in this ordinance for review and approval. A repowering event does not include replacement of panels in previously approved locations due to weather damage, equipment failure, or a force majeure event.

(1) The plan shall include updated information for some or all or the reports and plans required by this section, as determined necessary by the Zoning Director.

(2) The Board of Adjustment shall review and approve, conditionally approve, or deny the repowering plan as per the requirements of Section 2.02.9 and 5.08.

13. **Decommissioning, Abandonment, Escrow Account, and Site Restoration Plan.**

A. The application must include a decommissioning plan that describes the following:

(1) The anticipated life of the utility scale solar installation.

(2) The anticipated manner in which the project will be decommissioned, including plans to recycle components and dispose of any hazardous materials.

(3) The anticipated site restoration activities.

(4) The estimated decommissioning costs in current dollars.

(5) The method for ensuring that funds will be available for decommissioning and restoration of the site.

B. Decommissioning cost considerations. The applicant shall provide the estimated cost of decommissioning, excluding the salvage value, should be presented from both the solar developer and from an independent third-party engineer, at the recommendation of the Woodbury County Engineer, at the expense of the developer.

(1) Removal of any hazardous materials at the facility, as determined by a Toxic Characteristic Leaching Procedure (TCLP) or other similar test approved by Woodbury County and as described in the facility's Operations and Maintenance Plan. TCLP testing shall be performed prior to any ground disturbance at the project site.

(2) Salvage value shall not be included in the cost estimate.

(3) The estimated decommissioning cost must be updated every 5 years of the project using the same process as the initial decommissioning cost process.

C. Site restoration activities. Restoration activities shall include, but not be limited to, the following:

(1) Removal of all components and equipment.

(2) Soil in project area shall be decompacted and seeded with a cover crop, unless otherwise specified in the approved vegetation plan and/or agricultural impact mitigation plan.

(3) For any part of the energy project on leased property, the plan may incorporate agreements with the landowner regarding leaving access roads, fences, gates or repurposed buildings in place or regarding restoration of agricultural crops or forest resource land. Any use of remaining structures must be in conformance with the regulations in effect at that time.

D. Performance agreement and proof of financial surety. At the time of permitting, the applicant, facility owner, or site operator shall provide a Performance Agreement and accompanying financial surety instrument to cover the cost of decom-

missioning in accordance with the following:

(1) A bond shall be required for 125% of the most recent estimated decommissioning total cost paid for by the project owner/developer. The bond shall remain in place until one (1) year after the last day of decommissioning.

(2) Decommissioning funds shall be maintained in the form of a performance bond, surety bond, bank letter of credit, stable parent company guarantee, or other form of financial assurance as approved by the Woodbury County Board of Supervisors. Any financial document evidencing the maintenance of the decommissioning funds shall include provisions for releasing the funds to the County in the event decommissioning is not completed in a timely manner.

(3) Prior to any ground disturbance, grading or construction activity on the site, twenty-five percent (25%) of total estimated decommissioning costs shall be provided by any of the means listed above. An additional twenty five percent (25%) shall be provided within five (5) years and ten (10) years of the date of initial approval, and the remaining twenty five percent (25%) of the total re-estimated decommissioning costs shall be provided within fifteen (15) years of the date of initial approval. From that point forward, 100% of the total estimated decommissioning costs as determined by the most recent re-estimation shall be maintained in the decommissioning fund until the end of the functional life of the project.

(4) Financial surety shall be maintained for the life of the project.

(5) Proof of recertification of the financial surety instrument must be submitted to the County annually.

(6) Every five (5) years, the facility owner or operator shall retain an independent Licensed Iowa Engineer approved by the County to re-estimate the total cost of decommissioning and attest that the value of the financial surety instrument is appropriate. This report shall be filed with the County and shall incorporate any new industry information learned since the last cost determination.

(7) The required amount of the decommissioning fund shall match the re-estimated cost of decommissioning. Within ninety (90) days of filing the re-estimation report with the County, the facility owner or operator shall cause the fund balance of the financial surety instrument to be adjusted to ensure that it matches the re-estimated decommissioning cost.

E. Escrow Account. At the time of permitting, the applicant, facility owner, or site operator shall provide at least $100,000 per megawatt of project in an escrow account in addition to the total decommissioning funds that shall remain in the ac-

count up until one year after the last day of the decommissioning upon successful completion will be returned to the application/owner/operator. Any interest earned in the account shall belong to the County.

F. Commencement of site decommissioning. Decommissioning of the site shall commence at the time identified in the project decommissioning plan or performance agreement, or when the facility is determined to have been abandoned.

(1) Decommissioning shall be completed in accordance with the approved decommissioning plan.

(2) The landowner or tenant shall notify the Zoning Director both when the project is discontinued and when decommissioning is complete.

(3) Third-party verification, as well as County verification of completed decommissioning will be required before the financial surety may be released.

(4) The facility will be considered abandoned or out of commission in the following circumstances:

1. Upon termination or expiration of the solar farm leases/easements or

2. After one year without production, storage of energy, or use as a backup facility.

3. Exceptions could be made for:

a. A force majeure event that has occurred or is occurring, which will prevent the facility from resuming operation within 12 months.

b. If the facility is in the process of being repowered.

c. The project is pending completion of construction of the facility due to a backlog of cases or service requests in the MISO queue.

d. A situation in which the project owner can provide evidence to the Woodbury County Board of Supervisors, that the facility's period of continuous inactivity is due to circumstances beyond the project owners control and that the facility has not been abandoned.

e. Appeal of the notice of abandonment from the county within a set time of the project owner's receipt of the notice in which the project owner explains the reasons for operation-

al difficulty and provides a timeframe for corrective action that the county deems reasonable.

14. **Soil Erosion and Sediment Control Plan.** A grading plan shall be submitted and shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.). The plan shall be accompanied with the following documentation:

    A. Erosion and Sediment Control

        (1) The applicant agrees to conduct all roadwork and other site development work in compliance with a national pollutant discharge elimination system (NPDES) permit as required by the state department of natural resources and comply with requirements as detailed by local jurisdictional authorities during the plan submittal. If subject to NPDES requirements, the applicant must submit the permit for review and comment, and an erosion and sediment control plan before beginning construction. The plan must include both general 'best management practices' for temporary erosion and sediment control both during and after construction and permanent drainage and erosion control measures to prevent damage to local roads or adjacent areas and to prevent sediment-laden run-off into waterways.

    B. Stormwater Management Plan

        (1) For the purposes of pollutant removal, stormwater rate and runoff management, flood reduction and associated impacts, the applicant shall provide a detailed analysis of pre- and post-development stormwater runoff rates for review by local jurisdictional authorities.

15. **Emergency Response Plan**

    A. The applicant shall submit an emergency response plan prior to any ground disturbance at the project site detailing the planned response actions that will be taken by the solar facility operator, including any battery energy storage systems in the event of an emergency situation. These actions are intended to minimize health risks to personnel and people in the surrounding community, as well as minimize adverse impacts to the environment.

        (1) The plan shall include, but is not limited to, a detailed narrative of response procedures and the facility representatives responsible for management of the following plausible contingencies that could occur at the facility: natural disaster/severe weather, fire, security incident, capacity/transmission, environmental, chemical, pipeline (if applicable), and medical. It shall include procedures for a site evacuation, designated egress routes and emergency staging areas.

(2) The plan shall include a stand-alone section detailing the emergency response protocols specific to battery energy storage areas (if applicable).

(3) The plan shall be developed in coordination with local first responders, Woodbury County Emergency Management & Woodbury County Public Health personnel.

16. **Future Operators.** Future operators, successors, assignees, or heirs shall agree in writing to accept and to conform to all conditions of approval in the staff report. Prior notice to the County of the intent to sell or transfer ownership shall be done in a timely manner. Such agreement shall be filed with and accepted by the County before the transfer to a new operator, successor, assignees, or heirs shall be effective.

17. **Severability**

A. Should any section or provisions of this Ordinance be declared by the courts to be invalid or unconstitutional, such decision shall not affect the validity of the Ordinance as a whole, or any part thereof other than the part so declared to be invalid or unconstitutional.

18. **Penalty**

A. Any person, persons, firms, partnerships or corporations, whether acting alone or in concert with any other, who violates this Ordinance shall be guilty of a simple misdemeanor as authorized by Iowa Code Section 331.302.

19. **Effective Date**

A. This Ordinance shall be in effect after its final passage, approval, and publication as provided by law.

Concept 3 - Establish A Utility-Scale Solar Energy Systems Overlay District

Create a utility-scale solar energy systems overlay district which includes a protocol with maximum stakeholder involvement. Include both the Woodbury County Zoning Commission and the Board of Supervisors (BoS) in the rezone consideration process where the Commission makes a recommendation to the BoS who determine whether the area is appropriate or not. Establish a set number of acres (cap) from the AP Zoning District that the overlay can serve. Set the criteria to include CSR2 and/or an evaluation scorecard. Another issue that could be addressed at some point is the consideration of utility-scale solar battery systems. Possibly language is included in this draft for informational purposes. Battery systems could be separated into a different debate or included within the current discussions.

Zoning Ordinance Text Amendment Outline – Add the following:

Section 5.09: Utility-Scale Solar Energy Systems Overlay District (US-SESOD)

1. Utility-Scale Solar Energy Systems Overlay District (US-SESOD)
    - A. Purpose and Intent
    - B. Jurisdiction
    - C. Applicability
    - D. Zoning Ordinance Map Amendment (Rezone) Required
    - E. Geographic Location and Area Limitations
    - F. Allowed Uses
    - G. Dimensional Standards
    - H. Supplemental Regulations
    - I. Major Site Plan Required
    - J. Notification Requirements
    - K. Review and Decision-Making Process
    - L. Application Materials
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                - (5) Public Drainage District Right-of-Way
                - (6) Public Conservation Area
                - (7) Cemetery
                - (8) City Limits
                - (9) Airports
        - (2) Screening
        - (3) Utility Connections
        - (4) Grading Plan
        - (5) Glare Minimization
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The following pages include the draft ordinance as outlined above.

Section 5.09: Utility-Scale Energy Systems Overlay Districts

1. **Utility-Scale Solar Energy Systems Overlay District (US-SESOD)**

A. **Purpose and Intent.** The Utility-Scale Solar Energy Systems Overlay District (US-SESOD) is intended to be mapped as an overlay of the Agricultural Preservation (AP) Zoning District. The US-SESOD zone is intended to allow for the orderly development of utility-scale energy projects including utility-scale solar energy systems, community solar systems, and agrisolar or agrivoltaic systems. This section establishes an overlay district that serves the following purposes:

(1) To provide a reasonable and thoughtful balance to limited development and use of utility-scale energy systems in the AP Zoning District.

(2) To encourage the continued role of agriculture as the primary economic sector in the unincorporated areas of Woodbury County and the continued preservation of its rural character.

(3) To encourage development that conforms to the vision, goals, and policies in the Woodbury County Development Plan.

(4) To encourage sustainable and energy efficient development and reasonable access to renewable energy not limited to solar.

(5) To maintain or enhance soil heath for future agricultural use after project decommissioning.

B. **Jurisdiction.** This Ordinance is adopted by the Woodbury County Board of Supervisors and governs all lands within the unincorporated areas of Woodbury County, Iowa. This Ordinance and its provisions shall not apply to those properties or projects occurring within the incorporated cities of Woodbury County.

C. **Applicability.** It shall be unlawful to construct, erect, install, alter or locate any US-SES within unincorporated Woodbury County, without first obtaining a Conditional Use Permit from the Woodbury County Board of Adjustment and the associated agreements from the Woodbury County Board of Supervisors or obtaining rezoning to the US-SESOD as outlined in this Ordinance.

(1) No application for a US-SESOD shall be granted without first submitting all required information and documentation, and paying all associated fees to the County.

D. **Zoning Ordinance Map Amendment (Rezone) Required.** In addition to all submittal requirements of Section 2.02.4 of this Ordinance for a Zoning Ordinance Map Amendment, this Section sets the requirements specific to the US-SESOD.

E. **Geographic Location and Area Limitations.** The US-SESOD shall be geographically located in those areas currently zoned Agricultural Preservation (AP). The US-SESOD shall be capped to 9,500 acres over the Agricultural Preservation (AP) Zoning District. No more than 9,500 acres shall be established as the overlay of the Agricultural Preservation (AP) Zoning District. Each granted Zoning Ordinance Map Amendment (rezone) shall reduce the cap by the number of acres approved in each rezone until the original cap is reduced to 0.

F. **Allowed Uses.** The specific land uses allowed as principal allowed, conditional and accessory in the AP Zoning District are allowed in the US-SESOD in addition to the following use(s) which are hereby established as allowed uses:

(1) Utility-Scale Solar Energy Systems (US-SES)

(2) Community Solar Systems

(3) Utility Agrisolar Systems

Concentrating solar power systems are prohibited.

G. **Dimensional Standards.** Section 3.04 includes a table of comparative dimensional standards for all zones. The dimensional standards of the AP Zoning District shall apply to the US-SESOD unless otherwise stated in this Ordinance.

H. **Supplemental regulations.** All pertinent provisions of Article 5, Supplemental Regulations, shall apply to uses and development in the US-SESOD.

I. **Major Site Plan Required.** A major site plan shall be submitted and reviewed prior to the approval of a utility-scale solar installation. The area to be used for the utility scale solar installation shall require rezoning to the US-SESOD.

J. **Notification Requirements.** To assist in providing adequate notice to interested parties, the application for a Zoning Ordinance Map Amendment (Rezone) to the US-SESOD shall:

(1) Within 14 days of filing the rezoning application with the Woodbury County Community and Economic Development Department, mail a notice via first class mail to property owners and tenants within one (1) mile of the subject site explaining the request and identifying the subject property.

(2) Prior to the application being heard at the Planning and Zoning Commission meeting, the applicant shall host a public informational meeting held at a location reasonably accessible to all identified property owners.

(3) Applicants must mail a notice of the public informational meeting via first class mail to property owners and tenants within one (1) mile of the subject site.

(4) Applicants must submit a certified abstractor listing of the names and mailing addresses of all owners of real property lying within one (1) mile from the subject property with their application materials as required in this Ordinance.

K. **Review and Decision-Making Process**

(1) **Evaluation Criteria.** The Planning and Zoning Commission shall base their recommendation and the Board of Supervisors shall base their decision on the requested zoning ordinance map amendment to the US-ESO on the following criteria:

(a) The proposed US-SESOD will be in harmony with the general purpose and intent of this Ordinance and the goals, objectives and standards of the general plan.

(b) The proposed US-SESOD will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting public health, safety and general welfare.

(c) The proposed US-SESOD will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property.

(d) Essential public facilities and services will adequately serve the proposed US-SESOD.

(e) The proposed US-SESOD will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties.

(f) The proposed use or development, at the particular location is necessary or desirable to provide a service or facility that is in the public interest or will contribute to the general welfare of the

neighborhood or community.

(g) All possible efforts, including building and site design, landscaping and screening have been undertaken to minimize any adverse effects of the proposed use or development.

(h) Compatibility and conformance with the policies and plans of other agencies with respect to the subject property;

(i) Consideration of the Corn Suitability Rating 2 (CSR2) of the property;

(j) Consideration of a slope no greater than 10%;

(k) Compatibility with other physical and economic factors affecting or affected by the proposed US-SESOD;

(l) Conformance with Woodbury County Utility Scale Solar Scorecard. All projects shall meet the minimum passing threshold of 100 Points in the Woodbury County Utility Scale Solar Scorecard, as enumerated below:

(i) Planned percent of native species of the entire site's vegetative cover:

1. 25-35%, +12 points
2. 36-50%, +20 points
3. 51-65%, +28 points
4. 66-80%, +36 points
5. >80%, + 40 points
6. <25%, + 0 points

(ii) Planned number of species in entire site's vegetative cover:

1. 5-9 species, +8 points
2. 10-15 species, +12 points
3. 16-19 species, +16 points
4. >20 species, +20 points

(iii)Site Planning and Management

1. Site has approved vegetation management plan, +20 points
2. Site has approved agricultural impact mitigation plan, +20 points

(iv)Percent of site in a medium (65-82) CSR2 area

1. 10-15%, -2 points
2. 26-50%, -3 points

3. 51-75%, -4 points
4. >75%, -5 points

(v) Percent of site in a low (<65) CSR2 area
1. 10-15%, +6 points
2. 26-50%, +8 points
3. 51-75%, +10 points
4. >75%, +12 points

(vi)Number of agrivoltaics practices on site
1. 1 practice, +5 points
2. 2 practices, +10 points
3. >2 practices, + 15 points
4. No practices, 0 points

(vii) Planned percentage of the entire site's vegetative cover than includes flowering plants
1. 10-25%, +4 points
2. 26-50%, +8 points
3. 51-75%, +12 points
4. >75%, +16 points
5. No flowering plants, -15 points

(viii) Planned seasons with at least three blooming species present
1. Spring (April – May), +5 points
2. Summer (June – August), +5 points
3. Fall (September – October), +5 points

(ix)Percentage of site that is graded
1. 0-10%, +20 points
2. 10-30%, +10 points
3. 30-50%, 0 points
4. >50%, -10 points

(x) Increased Setbacks
1. No non-participating dwellings within 300' of project boundaries, 0 Points
2. No non-participating dwellings within 500' of project boundaries, +30 points
3. No non-participating dwellings within 750' of project boundaries, +35 points
4. No non-participating dwellings within 1000' of project boundaries, +40 points

5. No non-participating dwellings within 1250' of project boundaries, +45 points

(xi) Average Solar Height
1. >24", +5 points
2. >26", +10 points
3. >28", +15 points
4. >30", +20 points
5. >32", +25 points

(xii) Exceptional Good Neighbor Practices
1. Good neighbor payments for adjacent non-participating landowners, +10 points
2. Good neighbor payments for tenant farmers displaced by the project, +10 points
3. Agreement to source labor locally, +15 points.

(m) Any other relevant factors.

(2) Planning and Zoning Commission Recommendation. The Planning and Zoning Commission shall review and make a recommendation on the proposed US-SESOD to the zoning district map as follows:

(a) Hearing required. The Planning and Zoning Commission shall conduct a public hearing on the proposed US-SESOD in accordance with this Ordinance.

(b) Notification. Public notification of the Planning and Zoning Commission hearing on the proposed US-SESOD of the official zoning map shall be as required by subsection 2.02-1. B(1). Such notices shall provide information on the time, date, and location of the hearing and a brief description of the proposed change to the US-SESOD.

(c) Time Limit for Recommendation. A recommendation to the Board of Supervisors for approval, approval with conditions or disapproval on the proposal, shall be made within 35 days of the conclusion of the public hearing unless the petitioner consents to an extension of time. If no recommendation is made within 35 days from the conclusion of the public hearing, the issue will be forwarded to the Board of Supervisors with no recommendation.

(3) Board of Supervisors Action. Following receipt of the recommendation of the Planning and Zoning Commission, the Board of Supervisors shall consider and act upon a proposed amendment to the zoning district map

as follows:

(a) Hearing Required. The Board of Supervisors shall conduct a public hearing on the proposed US-SESOD in accordance with the procedures outlined in this Ordinance.

(b) Notification. Public notification of the Board of Supervisors hearing on the proposal shall be as required in this Ordinance.

(c) Decision. Following the public hearing, the Board of Supervisors may:

(i) Defer consideration of the proposal; or

(ii) Reject the proposal; or

(iii) Proceed subject to subsections (iv) and (v) below, to adopt an ordinance approving the amendment to the zoning district map.

(iv) Super majority required. A 60 percent majority of the Board of Supervisors shall be required to adopt the proposed amendment of the US-SESOD if the owners of more than 20 percent of either (a) the area of the subject property or (b) the area or real property lying within 500 feet of the subject property file a written objection prior to the conclusion of the public hearing.

(v) The Board of Supervisors may impose restrictive conditions upon approval of an amendment to the US-SESOD if, before the conclusion of the public hearing, the owner agrees to the conditions in writing.

L. **Application Materials.** In addition to all submittal requirements of a major site plan, the Zoning Ordinance Map Amendment (Rezone) application, and the US-SESOD, the application for a utility scale solar installation shall include the following information on the site plan or in narrative form, supplied by the utility scale solar installation owner, operator or contractor installing the structures:

(1) The name and address of the applicant, as well as the proposed owners or operators of the project, including the contact information (name, address, telephone and email) of their authorized representatives. The application shall designate the entity who would be the permit holder of the conditional use permit and building permit.

(2) Documentation of the applicant's legal control over the private property necessary for the project, signed by the property owner. Such legal control must vest in the permit holder of the Conditional Use Permit at the time of its issuance.

(3) A certified abstractor listing of the names and mailing addresses of all owners of real property lying within one (1) mile from the subject property shall be provided with the application.

(4) A plat of survey showing the parcels on which the utility-scale solar structures and associated assets will be included in the project area.

(5) Legal descriptions of all properties, leased and/or owned, identified to be part of the project area.

(6) A Development Plan including:

(a) Project timeline. Project timeline showing how the site will be developed from beginning to end.

(b) Site plan. A professionally prepared site plan drawn to scale shall showing the location and spacing of every solar panel/array, all other facilities to be constructed and associated with the project, and all existing assets located in the project area. Specifically, the site shall include:

(i) North arrow and scale.

(ii) Property lines and physical dimensions of the project area.

(iii) Setback locations from the property line locations clearly marked for the applicable Zoning District.

(iv) Location of the right-of-way.

(v) Location and layout of vehicle parking, loading and queuing areas, street accesses, and driveways.

(vi) Easements present on the property including those for utilities.

(vii) Total number, location and spacing with dimensions (length, width, & height) of solar panels/arrays and all other supporting structures including the distances from the property lines and other structures.

(viii) Location with dimensions (length, width, & height) of existing structures and distances from the property lines and other structures.

(ix) Location of underground and/or overhead electric lines.

(x) Location of field tile.

(xi) Location of well.

(xii) Location of the sanitary infrastructure (e.g. – Septic tank and system).

(xiii) Location of topography lines (2 foot contours).

(xiv) Flood hazard area designations.

(xv) Such other information as the Zoning Director may require to determine compliance with the provisions of this and other Woodbury County Ordinances.

(c) Structure Plans. Architectural and/or engineer plans and specifications prepared pursuant to the acceptable professional standards.

(d) A map showing the separation distances of the project area from adjacent property lines; occupied residences; unoccupied non-residential buildings; public rights-of-way; public drainage districts; public conservation areas; cemeteries; city limits; airports (public and private); lakes; and permanent water courses.

(e) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.

(f) Grading plan. This plan shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.). The plan shall include soil erosion and sediment control considerations and storm water management practices as referenced in this Ordinance. A storm water pollution prevention plan (SWPPP) and permits from the Iowa Department of Natural Resources and other applicable government bodies must be submitted.

(g) Geotechnical report. A site-specific geotechnical report shall be submitted by a professional licensed engineer qualified in the field of geotechnical engineering, registered in the State of Iowa, and

prepared in accordance with generally accepted geotechnical and environmental engineering practices to assess the potential risk of slope instability or landslide for the proposed development in its existing and post developed state.

(h) Floodplain data. Development within the Special Flood Hazard Area (SFHA) shall comply with federal, state, and local regulations. Proposals for the US-SESOD shall include base flood elevation data for the footprint of the project area. Proposals shall also include the elevation of the proposed development site (natural ground).

(i) Utility plan. Planned location of all utilities, including underground or overhead electric lines.

(j) Landscaping/Screening plan. Planned location of all plants and screening.

(k) Road Impact Analysis. An inventory of the existing road network to be utilized for construction and maintenance of the facility and details on how the project will impact those roads over the life of the project, including during installation and decommissioning.

(l) Interconnection agreement. Provide the interconnection agreement with the utility company.

(m) Operation and Maintenance Plan.

(n) Decommissioning plan.

(o) Agricultural Impact Mitigation Plan.

(p) Vegetative Management Plan.

(q) Wildlife/Biological Habitat Assessment & Mitigation Plan.

(r) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.

(s) Emergency Response Plan.

(t) Any Federal Aviation Administration (FAA), or other federal, state, or local permits or approvals that are necessary for the project. Applicant shall submit a copy of the actual permit, or proof that the permit has been filed with the appropriate agency.

(u) Such additional information as the County may request due to the unique circumstances with the project.

(v) Any other information necessary to describe the intended development plan. Applicants are encouraged to have on-going discussions with the county zoning staff, county engineer, and other associated county departments during the preparation of the application.

M. **Site and Structure Requirements.**

(1) Setbacks. Setbacks for all structures (including solar arrays) must adhere to the minimum principal setback standards for the zoning district where the project is located in addition to dwelling and stream corridor setbacks unless otherwise specified in this Ordinance.

Separation Distances (Setbacks). All US-SES, accessory structures and any upgrades to existing solar energy systems shall observe the following setbacks, to be measured from the edge of the solar panels and equipment (not underground facilities such as cable or fencing):

Protected Area TBD	**Setback Requirement TBD**
Adjacent Property Lines	50 feet* **TBD?**
Occupied Residence	1000 feet **TBD?**
Unoccupied Non-Residential Building	100 feet **TBD?**
Public Road Right-of-Way	100 feet **TBD?**
Public Drainage District Right-of-Way	100 feet **TBD?**
Public Conservation Area	1 mile **TBD?**
Cemetery	600 feet **TBD?**
City Limits	2 miles **TBD?**
Airports (public and private)	FAA consultation and determination required. **TBD?**

* US-SES to be built on more than one parcel and parcels are abutting, a zero (0) side or rear setback shall be permitted to the property line in common with the abutting parcel(s).

Setback Waivers. Property owners and municipalities may require a waiver from the setbacks as established in this Section, except for the following protected areas: airports, cemeteries, public conservation areas, and public road rights-of-way.

PROVIDED, a waiver shall not alter any other non-waived setback requirement.

To effectuate such a waiver, the applicant must provide the Zoning Director with a recordable instrument signed by all owner(s)(or the controlling governmental entity) of the affected protected area that specifically identifies the nature and extent of the waiver. All waivers must be reviewed by the Board of Supervisors for compliance with this Section; and if deemed compliant, it shall be recorded in the office of the Woodbury County Recorder by the applicant. No waiver shall be granted for setbacks less than the required minimums for the Zoning District.

(a) Solar panels, structures, and electrical equipment, excluding fences and power lines for interconnection, shall be kept a minimum of one thousand (1000) feet from dwellings, unless the property owner waives the setback. Waiver must be in writing and recorded.

(b) Solar panels, structures, and electrical equipment, excluding fences and power lines for interconnection, shall be kept a minimum of one hundred and twenty (120) feet from the centerline of all stream corridors and open ditches containing perennial flow throughout the majority of the growing season.

(2) Screening. Project shall provide vegetative screening for all dwellings within 1,000 feet of the project boundaries.

(a) Applicant shall submit a screening plan for each dwelling within 1,000 feet of the project boundaries.

(b) Screening may be waived by the owner of a dwelling. Waiver must be in writing and recorded.

(c) Screening may be waived by the Zoning Administrator upon submission of a viewshed study from the applicant demonstrating that the project is not within the viewshed of the dwelling due to topography, existing vegetation, or other factors. The point of reference used in the viewshed study shall be as close to the dwelling as possible.

(d) Any vegetative screening within the project boundaries shall be maintained throughout the life of the project by the project owner. Any screening on the dwelling property shall be maintained by the project owner for no less than twelve months.

(e) Deciduous trees shall have a minimum caliper of 1.5” when planted, shall be at least six (6) feet tall within three (3) years of installation, and shall have a minimum mature height of twelve

(12) feet.

(f) Screening plans shall use no less than two varieties of tree.

(3) Utility connections. Reasonable efforts shall be made to place all utility connections from the solar installation underground, depending on appropriate soil conditions, shape and topography of the site, distance to the connection, or other conditions or requirements.

(4) Grading plan. A grading plan shall be submitted and shall include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.).

(5) Glare minimization. All solar panels must be constructed to minimize glare or reflection onto adjacent properties and adjacent roadways and must not interfere with traffic, including air traffic, or create a safety hazard.

(6) Compliance with local, state and federal regulations. Utility scale solar installations shall comply with applicable local, state and federal regulations.

(7) Appurtenant structures. All appurtenant structures shall be subject to bulk and height regulations of structures in the underlying zoning district.

(8) Floodplain considerations. Utility scale solar installations are considered to be maximum damage potential structures and facilities for purposes of the floodplain district regulations.

(9) Fencing/security. A security fence must be installed along all exterior sides of the utility scale solar installation and be equipped with a minimum of one gate and locking mechanism on the primary access side. Security fences, gates and warning signs must be maintained in good condition until the utility scale solar installation is dismantled and removed from the site.

(10) Panel Height. To encourage the establishment of a diverse native seed mix, panels shall be installed a minimum of 24” from the lower edge of the panel at maximum tilt to the ground.

N. Avoidance and mitigation of damages to public infrastructure.

(1) Roads. Applicants shall adhere to the Woodbury County Road Use and Repair Agreement, and in doing so, shall identify all roads to be used for the purpose of transporting batteries, parts, cement, and/or equipment for

construction, operation or maintenance of the US-BESSOD and obtain applicable weight and size permits from the impacted road authorities prior to construction.

(2) Existing road conditions. Applicant shall conduct a pre-construction survey, in coordination with the impacted local road authorities to determined existing conditions of roads identified pursuant to Section 5.09.1 L(1). The survey shall include photographs or video and written documentation of the condition of the identified road facilities. The applicant is responsible for on-going road maintenance and dust control measures identified by the Woodbury County Engineer during all phase of construction.

(3) Drainage system. The applicant shall be responsible repair of damage to public drainage systems stemming from construction, operation or maintenance of the solar installation. Applicant shall acknowledge any damage to public drainage systems and the responsibility for repair in a timely manner within 72 hours of damage discovery.

O. **Operation and maintenance plan.** The applicant shall submit a plan for the operation and maintenance of the solar installation including all necessary services, frequency of service, preventative maintenance measures, and monitoring. The operation and maintenance plan should include at a minimum:

(1) Preventative maintenance practices and schedules for all on-site equipment including but not limited to: inverters, panels, equipment pads, tracking systems, transformers, access entrances, internal roads, gates, fencing, security systems, stormwater management installations.

(2) Annual reporting and verification to county on the status or changes to ongoing service schedule.

(3) Schedule of all other monthly, annual, or semiannual reporting requirements for other submittals including: agricultural impact mitigation plan, decommissioning plan, and vegetation management plan.

(4) Noise. No operating solar energy equipment shall produce noise exceeding any of the following limitations, with the exception of initial construction and routine maintenance. Adequate setbacks and effective noise mitigating equipment shall be used to comply with these limitations:

(a) An hourly average noise level of fifty-five (55) dBA during the day (between sunrise and sunset), and an hourly average noise level of fifty (50) dBA at night (between sunset and sunrise), as measured

at the occupied dwelling of any adjacent property containing an existing residential structure. If the ambient sound pressure level exceeds 55 dBA during the day or 50 dBA at night, the standard shall be the ambient Leq (equivalent continuous sound pressure level) plus 5 dBA.

(b) A baseline noise evaluation shall be completed by a board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE) prior to construction of the proposed solar site.

(c) A post-construction noise evaluation shall be performed by a third-party board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE) following commencement of commercial operation of the project to verify compliance with the County's standards.

(d) The owner(s) of an adjacent property may voluntarily agree, by written and recorded waiver, to a higher noise level.

(5) Issue resolution protocols. Contact information for responsible party to address issues that may arise (damaged equipment causing excessive noise, etc.).

(6) Disposal/recycling plan for damaged or obsolete facility equipment or hazardous waste. No storage of inoperable or obsolete equipment shall be allowed to remain on-site. Site operator shall be responsible for the cleanup of debris related to storm damage.

(7) Cleaning chemicals and solvents. During operation of the proposed installation, all chemicals or solvents used to clean photovoltaic panels should be low in volatile organic compounds and the operator should use recyclable or biodegradable products to the extent possible. Any on-site storage of chemicals or solvents shall be referenced.

(8) Maintenance, repair, or replacement of facility. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to emergency response officials. Any retrofit, replacement or refurbishment of equipment shall adhere to all applicable local, state and federal requirements.

(9) Repowering. At the discretion of the zoning administrator, proposals to replace more than twenty five percent (25%) of the panels in a facility within a twelve (12) month period may be required to submit a plan for review and approval. A repowering event does not include replacement

of panels in previously approved locations due to weather damage, equipment failure, or a force majeure event.

(a) The plan shall include updated information for some or all or the reports and plans required by this section, as determined necessary by the zoning administrator.

(b) The zoning director shall review and approve, conditionally approve, or deny the repowering plan.

P. Decommissioning, abandonment, and site restoration plan.

(1) The application must include a decommissioning plan that describes the following:

(a) The anticipated life of the utility scale solar installation.

(b) The anticipated manner in which the project will be decommissioned, including plans to recycle components and dispose of any hazardous materials.

(c) The anticipated site restoration activities.

(d) The estimated decommissioning costs in current dollars.

(e) The method for ensuring that funds will be available for decommissioning and restoration of the site.

(2) Decommissioning cost considerations. The applicant shall provide the basis for estimates of net costs for decommissioning the site. Site restoration activities as described later in this section.

(a) Removal of any hazardous materials at the facility, as determined by a Toxic Characteristic Leaching Procedure (TCLP) or other similar test approved by Woodbury County and as described in the facility's Operations and Maintenance Plan. TCLP testing shall be performed prior to any ground disturbance at the project site.

(b) Salvage value shall not be included in the cost estimate.

(c) The cost basis shall include a mechanism for calculating adjusted costs over the life of the project.

(3) Site restoration activities. Restoration activities shall include, but not be limited to, the following:

(a) Removal of all components and equipment.

(b) Soil in project area shall be decompacted and seeded with a cover crop, unless otherwise specified in the approved vegetation plan and/or agricultural impact mitigation plan.

(c) For any part of the energy project on leased property, the plan may incorporate agreements with the landowner regarding leaving access roads, fences, gates or repurposed buildings in place or regarding restoration of agricultural crops or forest resource land. Any use of remaining structures must be in conformance with the regulations in effect at that time.

(d) Performance agreement and proof of financial surety. At the time of permitting, the applicant, facility owner, or site operator shall provide a Performance Agreement and accompanying financial surety instrument to cover the cost of decommissioning in accordance with the following:

(i) Decommissioning funds shall be an amount equal to the total costs for decommissioning the site, plus a ten percent (10%) contingency.

(ii) Decommissioning funds shall be maintained in the form of a performance bond, surety bond, bank letter of credit, stable parent company guarantee, or other form of financial assurance as approved by the County. Any financial document evidencing the maintenance of the decommissioning funds shall include provisions for releasing the funds to the County in the event decommissioning is not completed in a timely manner.

(iii)Prior to any ground disturbance, grading or construction activity on the site, twenty-five percent (25%) of total estimated decommissioning costs shall be provided by any of the means listed above. An additional twenty five percent (25%) shall be provided within five (5) years and ten (10) years of the date of initial approval, and the remaining twenty five percent (25%) of the total reestimated decommissioning costs shall be provided within fifteen (15) years of the date of initial approval. From that point forward, 100% of the total estimated decommissioning costs as determined by the most recent reestimation shall be maintained in the decommissioning fund until the end of the functional life of the project.

(iv) Financial surety shall be maintained for the life of the project.

(v) Proof of recertification of the financial surety instrument must be submitted to the County annually.

(vi) Every five (5) years, the facility owner or operator shall retain an independent Licensed Iowa Engineer approved by the County to re-estimate the total cost of decommissioning and attest that the value of the financial surety instrument is appropriate. This report shall be filed with the County and shall incorporate any new industry information learned since the last cost determination.

(vii) The required amount of the decommissioning fund shall match the re-estimated cost of decommissioning. Within ninety (90) days of filing the reestimation report with the County, the facility owner or operator shall cause the fund balance of the financial surety instrument to be adjusted to ensure that it matches the re-estimated decommissioning cost.

(e) Escrow Account. At the time of permitting, the applicant, facility owner, or site operator shall provide at least $100,000 per megawatt of project in an escrow account in addition to the total decommissioning funds that shall remain in the account up until one year after the last day of the decommissioning upon successful completion will be returned to the application/owner/operator. Any interest earned in the account shall belong to the County.

(f) Commencement of site decommissioning. Decommissioning of the site shall commence at the time identified in the project decommissioning plan or performance agreement, or when the facility is determined to have been abandoned.

(i) Decommissioning shall be completed in accordance with the approved decommissioning plan.

(ii) The landowner or tenant shall notify the Zoning Administrator both when the project is discontinued and when decommissioning is complete.

(iii) Third-party verification, as well as County verification of completed decommissioning will be required before the financial surety may be released.

(iv) The facility will be considered abandoned in the following circumstances:

1. Upon termination or expiration of the solar farm leases/easements or

2. After one year without production, storage of energy, or use as a backup facility.

3. Exceptions could be made for:

   (a) A force majeure event that has occurred or is occurring, which will prevent the facility from resuming operation within 12 months.

   (b) If the facility is in the process of being repowered.

   (c) The project is pending completion of construction of the facility due to a backlog of cases or service requests in the MISO queue.

   (d) A situation in which the project owner can provide evidence to the county board of supervisors, that the facility's period of continuous inactivity is due to circumstances beyond the project owner's control and that the facility has not been abandoned.

   (e) Appeal of the notice of abandonment from the county within a set time of the project owner's receipt of the notice in which the project owner explains the reasons for operational difficulty and provides a timeframe for corrective action that the county deems reasonable.

Q. Agricultural Impact Mitigation Plan (AIMP)

(1) The applicant shall submit an AIMP detailing strategies to avoid or mitigate detrimental impact to agricultural land resulting from the construction, operation, maintenance and/or decommissioning of the solar project. The primary goal of the AIMP is long-term protection of soil health to ensure the project area can be used for productive agricultural use both during, and at the end of the functional life of the

project.

(2) The AIMP shall include, but not be limited to, the following information:

(a) Project overview. Provide general background, list of project components, and construction timeline.

(b) Environmental/Agricultural Monitoring

(i) On-site monitoring to be conducted by third party environmental/agricultural professional during construction.

(ii) Report of findings to be submitted to county every 30 days during construction.

(iii)Responsible for verification and monitoring during and post construction of:

1. Soil segregation, stockpiling, backfilling, respreading methods
2. Trenching, & foundation installation
3. Compaction avoidance and decompaction practices
4. Grading Plan adherence
5. Wet weather conditions planning
6. Drain tile system
7. Erosion and sediment control measures
8. Installation and effectiveness of stormwater management structures
9. Invasive species prevention and mitigation

(c) Best Management Practices During Construction and Operation

(i) Best Management Practices (BMPs) shall be included that demonstrate Low Impact Development (LID) measures the applicant will take during construction to minimize

negative impact to long-term soil health and future agricultural viability. BMPs should preserve topsoil, reduce or eliminate compacted soils, test and design the project with regard for protection of existing soil profile below 12 inches, include robust long-term soil health monitoring protocols, invasive species prevention, and establish and maintain native, deep-rooted vegetative ground cover.

(d) Subsurface Drain Tile Survey, Avoidance & Mitigation Plan

(i) Documentation and mapping of existing drain tile systems within the entire project area including elevation, location, and size of tile inlet and outlets

(ii) Plan for relocation, removal or restoration of tile damaged during construction

(iii) Description of long-term maintenance and plan for ongoing review of existing and newly constructed tile systems (if applicable).

(e) Pre-construction Soil Health Analysis and Long-Term Soil Monitoring Plan

(i) Prior to construction, a soil analysis shall be conducted and assessed by a third-party professional to establish baseline soil health.

(ii) Required sampling protocol:

1. Pre-Construction and Post- Construction Baseline Surveys

(a) One sampling location per zone shall be created based on random sample method or soil type, with each zone not to exceed 20 acres.

(b) Two samples shall be collected from each sampling location (for example, the plow layer from 0 to 8 inches and subsoil from 8 to 16 inches).

(c) Each sample shall consist of a minimum of 10 subsamples collected from disparate

locations surrounding the sample location in each zone Samples shall be analyzed for soil health and soil chemical parameters during the same seasonal period and at the same sampling locations once prior to construction and once postconstruction to establish a baseline.

(d) In-field assessment resource evaluations shall be performed in conjunction with soil health testing for the purpose of tracking compaction, soil organic matter and aggregate stability indicators.

(e) Soil sample analyses shall utilize a laboratory testing program that includes standard chemical analysis for Phosphorous, Potassium, Calcium, Sulfur, pH, Cation Exchange Capacity (CEC), base saturation, and organic matter, and soil health analyses for soil respiration, wet aggregate stability, and active (permanganate oxidizable) carbon.

2. Year 5 through end of project life

(a) Same sampling protocol as above except frequency shall occur once every five years.

(b) Third-party evaluation and report on soil condition changes against baseline data throughout the lease period. Frequency of reporting shall match sampling protocol.

(f) Soil Protection and Compaction Avoidance

(i) Plan should include, at a minimum, a narrative or plan for LID construction practices and methods to be used during each stage of construction for protecting and preserving topsoil. Practices and methods should address, at a minimum, topsoil removal, segregation, stockpiling, replacement during backfill, and respreading, grading minimization, compaction prevention, wet weather conditions, and postconstruction decompaction.

1. All project areas in agricultural production at the time of permit issuance, shall be seeded with temporary cover within three months of commencement of pre-construction/civil activities (mobilization) if disturbance is not intended to occur within two months.

(g) Erosion and Sediment Control

(i) The applicant agrees to conduct all roadwork and other site development work in compliance with a national pollutant discharge elimination system (NPDES) permit as required by the state department of natural resources and comply with requirements as detailed by jurisdictional authorities during the plan submittal. If subject to NPDES requirements, the applicant must submit the permit for review and comment, and an erosion and sediment control plan before beginning construction. The plan must include both general "best management practices" for temporary erosion and sediment control both during and after construction and permanent drainage and erosion control measures to prevent damage to local roads or adjacent areas and to prevent sediment-laden run-off into waterways.

(h) Stormwater Management Plan

(i) For the purposes of pollutant removal, stormwater rate and runoff management, flood reduction and associated impacts, the applicant shall provide a detailed analysis of pre- and post-development stormwater runoff rates for review by local jurisdictional authorities. Such review may incorporate infiltration components consistent with practices as detailed in the state stormwater management manual.

R. **Vegetation Management Plan.** The application must include a vegetation management plan with the primary function of promoting long term soil health, through plant stand persistence, plant diversity, and use of deep-rooted perennials by utilizing recognized establishment and maintenance practices for native vegetation. The Vegetation Management Plan shall include:

(1) A description of the site characteristics including project location, size of the project in terms of acres, existing vegetation, current land uses, soils on and adjacent to the site using, topography with and adjacent to project site using 2' contours, and a description of the general hydrologic conditions of the site and adjoining areas noting any significant features

(public waters, water bodies, drainage ways, wetlands, farmed wetlands, restorable wetlands, sinks, hydric soils, etc.).

(2) A description of the management areas with maps including but not limited to the following: areas under the arrays, perimeter plantings, and any other designated management areas within or adjacent to the site.

(3) A description of the management objectives for each management area including:

(a) Short-term management objectives for each area (seed establishment 0-5 years). The emphasis will be on management strategies used during the vegetation establishment phase such as: cover crop and soil stabilization, weed and non-native species management, targeted re-seeding, etc.

(b) Long term management objectives for each area (5 years after establishment to end of permit) such as: target goals such as the percentage of the site covered by native species, development of a monitoring plan, and management strategies such as supplemental seeding.

(4) Establishment and management practices including:

(a) Site preparation (schedules/sequence of planned construction, planting, and management activities).

(b) Eliminating soil compaction prior to seeding.

(c) Seedbed preparation.

(d) Invasive species prevention.

(e) Cover crop planting and temporary covers.

(f) Establishment methods in years 0-5.

(g) Management methods in year 6 and beyond.

(h) Grazing practices (if applicable).

(5) Seeding and planting practices including:

(a) Seed mixes (names, ounces/acre in Pure Live Seed), seeds per sq ft., % of mix based on seeds per sq ft). A complete list of seeds shall be provided as well as a map denoting the seed mix areas.

Prior to seed procurement, seed origin shall be added to the list of seeds.

(i) At a minimum, ground under and around the solar array shall be planted with a perennial vegetated ground cover that includes a mix of perennial grasses and wildflowers that will preferably result in short stature prairie with a diversity of forbs and flowering plants that bloom throughout the growing seasons. Perennial vegetation (grasses and forbs) used shall be native on a regional basis (preferably to Iowa) but where appropriate to the ground cover plan goals, may also include other naturalized and non-invasive species which limit noxious and invasive species encroachment, provide habitat for pollinators and wildlife, build soil health, and/or provide other ecosystem services (i.e. clovers). Non-native species shall be limited to the following: legumes, not exceed 20 seeds per square foot and grasses, not to exceed 15 seeds per square foot.

(ii) Wherever native vegetation is discussed, including in the Woodbury County Utility Scale Solar Scorecard, native vegetation shall be defined as seed mix plan that meet criteria as described within the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Iowa 327 Conservation Cover Standard and supporting reference documents developed through the use of the Iowa NRCS Native Seed Calculator, or any other similar standard as approved.

(iii) Cover Crop and other short-term seeding methods shall be utilized for the purpose of site stabilization for all areas in agricultural production within three months of commencement of pre-construction/civil activities (mobilization) if planned disturbance is not intended to occur within 2 months of the time of permit issuance, preventing growth of noxious and invasive species, and aide in long term vegetative establishment. In addition to seed criteria specified above cover crop choice(s) shall meet or exceed 80% by volume of Pure Live Seed at time of use, be seeding date and zone appropriate for the selected species and be based on minimum thresholds as described within the USDA - NRCS Iowa 340 Cover Crop Standard, or other similar standard as approved.

(b) If visual screening is part of the project, provide a complete list of plantings as well as the size of the plantings.

(c) Summarize steps taken to ensure that any pesticides used at or near the site will not drift and impact native vegetation.

(d) Describe how planting will be conducted in each area (array, perimeter, detention area, etc.) including the sequence of planting, time of planting, and planting method.

(6) Vegetation monitoring and adaptive management practices to be used on site including:

(a) Construction monitoring. For compliance with the Agricultural Impact Mitigation Plan, a third-party qualified site monitor shall be required to be present on site during construction to ensure soil health is maintained.

(b) Vegetation establishment and monitoring plan. A qualified third-party independent monitor shall complete vegetation monitoring activities and provide reports to Woodbury County staff. Reports shall be submitted annually during the establishment phase (first 5 years) and every three years afterwards. Reports shall include: summary of site conditions and management activities, description of adaptive management actions implemented, description of any management challenges, an evaluation on whether the project is meeting stated management objectives.

(c) Adaptive management practices. Adaptive management approach shall use the results of the annual report and other site visits to determine measures necessary to achieve the stated management objectives.

S. Wildlife and Habitat Assessment and Mitigation Plan

(1) The applicant shall submit a Wildlife and Habitat Assessment and Mitigation Plan detailing strategies to avoid, or mitigate for, detrimental impact to existing habitat and wildlife resulting from the construction, operation, maintenance and/or decommissioning of the solar project. Consideration of established migration patterns, emphasis on habitat fragmentation avoidance, and allowance for limited wildlife movement into and through the array zones via wildlife friendly fencing design shall be considered.

(2) Fenced array areas are limited to 160 acres before establishment of a wildlife corridor shall be required.

(3) Solar panels, structures, electrical equipment, and fencing, excluding power lines for interconnection, through established drainageways. Drainageways shall be defined as stream corridors and open ditches containing perennial flow throughout the majority of the growing season.

T. Emergency Response Plan.

(1) The applicant shall submit an emergency response plan prior to any ground disturbance at the project site detailing the planned response actions that will be taken by the solar facility operator, including any battery energy storage systems in the event of an emergency situation. These actions are intended to minimize health risks to personnel and people in the surrounding community, as well as minimize adverse impacts to the environment.

(a) The plan shall include, but is not limited to, a detailed narrative of response procedures and the facility representatives responsible for management of the following plausible contingencies that could occur at the facility: natural disaster/severe weather, fire, security incident, capacity/transmission, environmental, chemical, pipeline (if applicable), and medical. It shall include procedures for a site evacuation, designated egress routes and emergency staging areas.

(b) The plan shall include a stand-alone section detailing the emergency response protocols specific to battery energy storage areas (if applicable).

(c) The plan shall be developed in coordination with local first responders, Woodbury County Emergency Management & Woodbury County Public Health personnel.

U. **Future Operators.** Future operators, successors, assignees, or heirs shall agree in writing to accept and to conform to all conditions of approval in the staff report. Prior notice to the County of the intent to sell or transfer ownership shall be done in a timely manner. Such agreement shall be filed with and accepted by the County before the transfer to a new operator, successor, assignees, or heirs shall be effective.

2. Utility-Scale Battery Energy Storage Systems Overlay District (US-BESSOD)

A. **Purpose and Intent.** The Utility-Scale Battery Energy Storage Systems Overlay District (US-BESSOD) is intended to be mapped as an overlay of the Agricultural

Preservation (AP) Zoning District. The US-BESSOD zone is intended to allow for the orderly development of utility-scale battery energy storage projects. This section establishes an overlay district that serves the following purposes:

(1) To provide a reasonable and thoughtful balance to limited development and use of utility-scale battery energy storage systems in the AP Zoning District.

(2) To encourage the continued role of agriculture as the primary economic sector in the unincorporated areas of Woodbury County and the continued preservation of its rural character.

(3) To encourage development that conforms to the vision, goals, and policies in the Woodbury County Development plan.

(4) To encourage sustainable and energy efficient development and reasonable access to renewable energy.

B. **Jurisdiction.** This Ordinance is adopted by the Woodbury County Board of Supervisors and governs all lands within the unincorporated areas of Woodbury County, Iowa. This Ordinance and its provisions shall not apply to those properties or projects occurring within the incorporated cities of Woodbury County.

C. **Applicability.** It shall be unlawful to construct, erect, install, alter or locate any US-SESOD within unincorporated Woodbury County, without first obtaining a Conditional Use Permit from the Woodbury County Board of Adjustment and the associated agreements from the Woodbury County Board of Supervisors or obtaining a Zoning Ordinance Map Amendment (Rezone) to the US-SESOD as outlined in this Ordinance.

(1) No application for a US-SESOD shall be granted without first submitting all required information and documentation, and paying all associated fees to the County.

D. **Zoning Ordinance Map Amendment (Rezone) Required.** In addition to all submittal requirements of Section 2.02.4 of this Ordinance for a Zoning Ordinance Map Amendment, this Section sets the requirements specific to the US-BESSOD.

E. **Geographic Location and Area Limitations.** The US-BESSOD shall be geographically located in those areas currently zoned Agricultural Preservation (AP). The US-BESSOD shall be capped to 9,500 acres over the Agricultural Preservation (AP) Zoning District. No more than 9,500 acres shall be established as the overlay of the Agricultural Preservation (AP) Zoning District. Each granted Zoning Ordinance Map Amendment (rezone) shall reduce the cap by the

number of acres approved in each rezone until the original cap is reduced to 0.

F. **Allowed Uses.** The specific land uses allowed as principal allowed, conditional and accessory in the AP Zoning District are allowed in the US-BESSOD in addition to the following use(s) which are hereby established as allowed uses:

(1) Utility-Scale Battery Energy Storage Systems Overlay District (US-BESSOD)

G. **Dimensional Standards.** Section 3.04 includes a table of comparative dimensional standards for all zones. The dimensional standards of the AP Zoning District shall apply to the US-BESSOD unless otherwise stated in this Ordinance.

H. **Supplemental regulations.** All pertinent provisions of Article 5, Supplemental Regulations, shall apply to uses and development in the US-BESSOD.

I. **Notification Requirements.** To assist in providing adequate notice to interested parties, the application for a Zoning Ordinance Map Amendment (Rezone) to the US-BESSOD shall:

(1) Within 14 days of filing the rezoning application with the Woodbury County Community and Economic Development Department, mail a notice via first class mail to property owners and tenants within one (1) mile of the subject site explaining the request and identifying the subject property.

(2) Prior to the application being heard at the Planning and Zoning Commission meeting, the applicant shall host a public informational meeting held at a location reasonably accessible to all identified property owners.

(3) Applicants must mail a notice of the public informational meeting via first class mail to property owners and tenants within one (1) mile of the subject site.

(4) Applicants must submit a certified abstractor listing of the names and mailing addresses of all owners of real property lying within one (1) mile from the subject property with their application materials as required in this Ordinance.

J. **Review and Decision-Making Process**

(1) **Evaluation Criteria.** The Planning and Zoning Commission shall base their recommendation and the Board of Supervisors shall base their decision on the requested zoning ordinance map amendment to the US-

ESO on the following criteria:

(a) The proposed US-BESSOD will be in harmony with the general purpose and intent of this Ordinance and the goals, objectives and standards of the general plan.

(b) The proposed US-BESSOD will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting public health, safety and general welfare.

(c) The proposed US-BESSOD will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property.

(d) Essential public facilities and services will adequately serve the proposed US-BESSOD.

(e) The proposed US-BESSOD will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties.

(f) The proposed use or development, at the particular location is necessary or desirable to provide a service or facility that is in the public interest or will contribute to the general welfare of the neighborhood or community.

(g) All possible efforts, including building and site design, landscaping and screening have been undertaken to minimize any adverse effects of the proposed use or development.

(h) Compatibility and conformance with the policies and plans of other agencies with respect to the subject property;

(i) Consideration of the Corn Suitability Rating 2 (CSR2) of the property;

(j) Consideration of a slope no greater than 10%;

(k) Compatibility with other physical and economic factors affecting or affected by the proposed US-BESSOD;

(l) Conformance with Woodbury County Utility Scale Solar Scorecard. All projects shall meet the minimum passing threshold

of 100 Points in the Woodbury County Utility Scale Solar Scorecard, as enumerated below:

(i) Planned percent of native species of the entire site's vegetative cover:
1. 25-35%, +12 points
2. 36-50%, +20 points
3. 51-65%, +28 points
4. 66-80%, +36 points
5. >80%, + 40 points
6. <25%, + 0 points

(ii) Planned number of species in entire site's vegetative cover:
1. 5-9 species, +8 points
2. 10-15 species, +12 points
3. 16-19 species, +16 points
4. >20 species, +20 points

(iii)Site Planning and Management
1. Site has approved vegetation management plan, +20 points
2. Site has approved agricultural impact mitigation plan, +20 points

(iv)Percent of site in a medium (65-82) CSR2 area
1. 10-15%, -2 points
2. 26-50%, -3 points
3. 51-75%, -4 points
4. >75%, -5 points

(v) Percent of site in a low (<65) CSR2 area
1. 10-15%, +6 points
2. 26-50%, +8 points
3. 51-75%, +10 points
4. >75%, +12 points

(vi)Number of agrivoltaics practices on site
1. 1 practice, +5 points
2. 2 practices, +10 points
3. >2 practices, + 15 points
4. No practices, 0 points

(vii) Planned percentage of the entire site's vegetative cover than includes flowering plants
1. 10-25%, +4 points
2. 26-50%, +8 points

3. 51-75%, +12 points
4. >75%, +16 points
5. No flowering plants, -15 points

(viii) Planned seasons with at least three blooming species present
1. Spring (April – May), +5 points
2. Summer (June – August), +5 points
3. Fall (September – October), +5 points

(ix) Percentage of site that is graded
1. 0-10%, +20 points
2. 10-30%, +10 points
3. 30-50%, 0 points
4. >50%, -10 points

(x) Increased Setbacks
1. No non-participating dwellings within 300' of project boundaries, 0 Points
2. No non-participating dwellings within 500' of project boundaries, +30 points
3. No non-participating dwellings within 750' of project boundaries, +35 points
4. No non-participating dwellings within 1000' of project boundaries, +40 points
5. No non-participating dwellings within 1250' of project boundaries, +45 points

(xi) Average Solar Height
1. >24", +5 points
2. >26", +10 points
3. >28", +15 points
4. >30", +20 points
5. >32", +25 points

(xii) Exceptional Good Neighbor Practices
1. Good neighbor payments for adjacent non-participating landowners, +10 points
2. Good neighbor payments for tenant farmers displaced by the project, +10 points
3. Agreement to source labor locally, +15 points.

(m) Any other relevant factors.

(2) Planning and Zoning Commission Recommendation. The Planning and Zoning Commission shall review and make a recommendation on the

proposed US-BESSOD to the zoning district map as follows:

(a) Hearing required. The Planning and Zoning Commission shall conduct a public hearing on the proposed US-BESSOD in accordance with this Ordinance.

(b) Notification. Public notification of the Planning and Zoning Commission hearing on the proposed US-BESSOD of the official zoning map shall be as required by subsection 2.02-1. B(1). Such notices shall provide information on the time, date, and location of the hearing and a brief description of the proposed change to the US-BESSOD.

(c) Time Limit for Recommendation. A recommendation to the Board of Supervisors for approval, approval with conditions or disapproval on the proposal, shall be made within 35 days of the conclusion of the public hearing unless the petitioner consents to an extension of time. If no recommendation is made within 35 days from the conclusion of the public hearing, the issue will be forwarded to the Board of Supervisors with no recommendation.

(3) Board of Supervisors Action. Following receipt of the recommendation of the Planning and Zoning Commission, the Board of Supervisors shall consider and act upon a proposed amendment to the zoning district map as follows:

(a) Hearing Required. The Board of Supervisors shall conduct a public hearing on the proposed US-BESSOD in accordance with the procedures outlined in this Ordinance.

(b) Notification. Public notification of the Board of Supervisors hearing on the proposal shall be as required in this Ordinance.

(c) Decision. Following the public hearing, the Board of Supervisors may:

(i) Defer consideration of the proposal; or

(ii) Reject the proposal; or

(iii) Proceed subject to subsections (iv) and (v) below, to adopt an ordinance approving the amendment to the zoning district map.

(iv) Super majority required. A 60 percent majority of the Board of Supervisors shall be required to adopt the

proposed amendment of the US-BESSOD if the owners of more than 20 percent of either (a) the area of the subject property or (b) the area or real property lying within 500 feet of the subject property file a written objection prior to the conclusion of the public hearing.

(v) The Board of Supervisors may impose restrictive conditions upon approval of an amendment to the US-BESSOD if, before the conclusion of the public hearing, the owner agrees to the conditions in writing.

K. **Application Materials.** Utility scale battery energy storage systems that are meant to store and/or supply energy for the primary purpose of wholesale or retail sales of generated electricity, and that are proposed either as part of a utility scale solar project or wind farm or as a standalone project requires rezoning to the US-BESSOD. A complete application shall include the following:

(1) Major site plan required. A major site plan shall be submitted and reviewed prior to the approval of a utility scale battery energy storage system. This site plan shall also include the following in addition to other requirements in this Ordinance:

(a) Power and communications lines.

(b) A preliminary equipment specification sheet that documents the proposed battery energy storage system components, inverters and associated electrical equipment that are to be installed. A final equipment specification sheet shall be submitted prior to the issuance of building permit.

(2) Additional information. In addition to all submittal requirements of a major site plan and rezoning application, the application for the battery energy storage system shall include the following:

(a) Property legal descriptions. Legal descriptions shall be submitted for the subject property (leased and/or owned) on which the battery energy storage system will be located.

(b) Pre-construction survey of nearby roads that may be impacted by construction of the facility.

(c) Interconnection agreement.

(d) Operation and maintenance plan.

(e) Tile investigation report.

(f) Emergency response plan.

(g) Decommissioning plan.

(h) Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.

(3) Site and structure requirements.

(a) Setbacks.

(i) All components of the battery energy storage system shall be setback at least two hundred (200) feet from a property line or right-of-way.

(ii) All components, except the interconnection point, installed as part of the battery energy storage system shall be setback at least five (500) hundred feet from the nearest property line including an occupied structure not located on the subject property. However, if the developer of the facility can obtain and record with the County Recorder a written, signed, and notarized statement from the owner of the property containing said structure waiving this setback, the minimum setback from may be reduced to two hundred (200) feet.

(iii) If the battery energy storage system is to be installed in conjunction to a new utility-scale solar facility, the battery energy storage system shall be sited so as to be located within the interior of said facility, with the banks of solar panels lying between the battery energy storage system and the edges of the facility.

(iv) All components of the battery energy storage systems shall be setback a minimum of one hundred and twenty (120) feet from the centerline of all stream corridors and open ditches containing perennial flow throughout the majority of the growing season.

(b) Height. Battery energy storage system shall not exceed the maximum height for the zoning district in which it is located.

(c) Fencing Requirements. The battery energy storage system including all mechanical equipment, shall be enclosed in fencing,

with a self-locking gate, and shall be a primarily woven wire or agricultural style fencing. The fence shall contain appropriate warning signage that is posted such that is clearly visible on the site. The warning signage shall include the type of technology associated with the battery energy storage system, any special hazards associated, the type of suppression system installed in the area of the battery energy storage system, and 24-hour emergency contact information, including reach-back phone number. Security fences, gates and warning signs must be maintained in good condition until the installation is dismantled and removed from the site.

(d) Landscape buffer and screening. In an effort to mitigate any potential negative effects and reduce the visual impact of the facility, the perimeter of the facility shall be landscaped to create a visual screen from neighboring properties. Landscaping shall be installed within a planting area around the facility, in accordance with the following standards:

(i) The landscaping buffer shall preferably use trees, shrubs, grasses and forbs that are native to Iowa, or where appropriate may include naturalized and noninvasive species.

(ii) The landscaping buffer shall use a combination of trees and plants to provide a vegetative screen. Trees shall be at least six (6) feet tall within three (3) years of installation and shall have a minimum mature height of twelve (12) feet or the height of any fencing, whichever is taller.

(iii) The planting area shall be located immediately adjacent to and outside the use area and shall extend no further than fifty (50) feet beyond the outside of the use area, which includes the security fence, required parking areas, required stormwater infrastructure, or other structures or infrastructure required or proposed with the development.

(iv) At the discretion of the approving authority, the minimum mature height of vegetative screening may be modified where the applicant can show good cause or practical difficulty.

(v) If the battery energy storage system is being constructed within the interior of a utility-scale solar facility, Planning and Zoning staff may waive or modify the requirements in

this subsection specific to battery energy storage systems.

(e) Floodplain considerations. Utility scale battery energy storage systems are considered to be maximum damage potential structures and facilities for purposes of the floodplain district regulations.

(4) Avoidance and Mitigation of Damages to Public Infrastructure.

(a) Roads. Applicants shall adhere to the Woodbury County Road Use and Repair Agreement, and in doing so, shall identify all roads to be used for the purpose of transporting batteries, parts, cement, and/or equipment for construction, operation or maintenance of the US-BESSOD and obtain applicable weight and size permits from the impacted road authorities prior to construction.

(b) Existing road conditions. Applicant shall conduct a pre-construction survey, in coordination with the impacted local road authorities to determined existing conditions of roads identified pursuant to Section 5.09.2 A(4)(b). The survey shall include photographs or video and written documentation of the condition of the identified road facilities. The applicant is responsible for on-going road maintenance and dust control measures identified by the Woodbury County Engineer during all phase of construction.

(c) Drainage system. The applicant shall be responsible for repair of damage to public drainage systems stemming from construction, operation or maintenance of the installation.

(5) Operation and maintenance plan. The applicant shall submit a plan for the operation and maintenance of the battery energy storage system, including all necessary services, frequency of service, preventative maintenance measures, and monitoring. The operation and maintenance plan should include at a minimum:

(a) Preventative maintenance practices and schedules for all on-site equipment.

(b) Annual reporting and verification to county on the status or changes to ongoing service schedule.

(c) Noise. The one (1) hour average noise generated by from the battery energy storage system, components, and associated ancillary equipment shall not exceed a noise level of fifty-five (55) dBA as measured from the occupied dwelling of any adjacent property containing an existing residential structure. Applicants may submit equipment and component manufacturer noise ratings

at the time of application to demonstrate compliance. If the ambient sound pressure level exceeds 55 dBA, the standard shall be the ambient Leq (equivalent continuous sound pressure level) plus 5 dBA.

(i) At the discretion of the approving authority, the applicant may be required to provide a baseline noise evaluation study completed by a board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE) prior to construction of the proposed solar site.

(ii) To document decibel level if there is a complaint on an operational system, at the discretion of the Zoning Administrator, the owner shall commission a report providing Operating Sound Pressure Level measurements from a reasonable number of sampled locations at the property line of any adjacent property containing an existing residential structure or any property zoned residential to demonstrate compliance with this standard. Report shall be completed by a board certified professional by the Institute of Noise Control Engineering (INCE), or an appropriately licensed Professional Engineer (PE).

(iii)The owner(s) of an adjacent property may voluntarily agree, by written waiver, to a higher noise level.

(d) Issue resolution protocols. Contact information for responsible party to address issues that may arise (damaged equipment causing excessive noise, etc.).

(e) Disposal/recycling plan for damaged or obsolete facility equipment or hazardous waste. No storage of inoperable or obsolete equipment shall be allowed to remain on-site. Site operator shall be responsible for the cleanup of debris related to storm damage.

(f) Fire safety compliance. The applicant shall document and describe how the fire safety system and its associated controls will function and be maintained in proper working order.

(g) Storm water management considerations.

(i) A run-off catch basin or other similar facility may be required to prevent contaminants from leaving the project area. If required, the applicant shall describe how the basin

will be maintained for the life of the project.

(ii) Applicant shall contact the Iowa Department of Resources and Woodbury Soil and Water Conservation District to request recommendations for stormwater management practices to be used on the site. These recommendations may be considered by the Planning & Zoning Commission and the Board.

(6) Tile Investigation Report. The applicant must submit a tile investigation report for the entire project area, identifying all drain tiles located therein. The applicant shall maintain and protect all drain tiles located within the project area and shall repair or replace any drain tiles damaged as a consequence of the installation or removal of the battery energy storage system and/or associated components.

(7) Emergency Response Plan. A copy of the approved emergency response plan shall be given to the system owner, the local fire department, and local fire code official. A permanent copy shall also be placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders. The emergency operations plan shall include the following information:

(a) Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.

(b) Procedures for inspection and testing of associated alarms, interlocks, and controls.

(c) Procedures to be followed in response to notifications from the battery energy storage system, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous conditions in the event of a system failure.

(d) Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions. Procedures can include sounding the alarm, notifying the fire department and Woodbury County Emergency Management, de-energizing equipment, and controlling and extinguishing the fire.

(e) Procedures for dealing with battery energy storage system equipment damaged in a fire or other emergency event, including maintaining contact information for personnel qualified to safely remove damaged battery energy storage system equipment from the facility.

(f) Other procedures as determined necessary by the County to provide for the safety of occupants, neighboring properties, and emergency responders.

(g) Procedures and schedules for conducting drills of these procedures and for training local first responders on the contents of the plan and appropriate response procedures.

(8) Decommissioning and site restoration plan. The decommissioning and site restoration plan shall address and/or ensure the following standards:

(a) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.

(b) The anticipated life of the battery energy storage system.

(c) The estimated decommissioning costs and method of ensuring funds will be available. Estimates for the total cost for decommissioning the site shall be determined by a Licensed Engineer. Salvage value shall not be included in the cost estimate. Cost estimate shall include a mechanism for calculating adjusted costs over the life of the project.

(d) The manner in which the site will be restored, including a description of how any changes to the surrounding areas and other systems adjacent to the battery energy storage system, such as, but not limited to, structural elements, building penetrations, means of egress, and required fire detection suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed.

(e) A listing of any contingencies for removing an intact operational energy storage system from service, and for removing an energy storage system from service that has been damaged by a fire or other event.

(f) Following a continuous one-year period in which no energy is stored, or if substantial action on construction or repairs to the project is discontinued for a period of one year, the permit holder will have one year to complete decommissioning of the battery energy storage system. At the discretion of the zoning

administrator, the continuous one-year period that triggers decommissioning may be extended if the applicant demonstrates ongoing commitment to the project through activities such as but not limited to making lease payments or documentation of ongoing maintenance or repairs.

(i) Decommissioning shall be completed in accordance with the approved decommissioning plan.

(ii) The landowner or tenant shall notify the Zoning Director both when the project is discontinued and when decommissioning is complete.

(g) At the discretion of the approving authority, financial surety may also be required.

(9) Future Operators. Future operators, successors, assignees, or heirs shall agree in writing to accept and to conform to all conditions of approval in the staff report. Prior notice to the County of the intent to sell or transfer ownership shall be done in a timely manner. Such agreement shall be filed with and accepted by the County before the transfer to a new operator, successor, assignees, or heirs shall be effective.

(10) Compliance with local, state and federal regulations. Utility scale battery energy storage systems shall comply with applicable local, state and federal regulations.

Summary And Conclusions

This report delivers information about the current status of the utility-scale solar energy debate in Woodbury County. This discussion is not about establishing solar provisions for the first time, it is about whether or not the Agricultural Preservation (AP) Zoning District is an appropriate zone or not for utility-scale solar. As this is an intricate discussion about the future landscape of Woodbury County with numerous variables for consideration, this consequential debate continues to be examined by extrapolating information from the public, consulting literature, and looking at methods other jurisdictions have employed. The report attempts to serve as a repository of information collected through the course of this investigation. It has become apparent that the debate of renewable energies is consequential and can have a direct impact on the populace.

Three potential routes are offered including: 1) focus on the comprehensive plan including the revision of the future land use map for potential renewable energy areas; 2) retain the current policy and revise the conditional use permit process for the General Industrial (GI) Zoning District; 3) establish a utility-scale solar energy systems overlay district.

It is concluded that the utility-scale solar energy debate would be best served by a direct focus on public input during the final stages of the adoption process of the Woodbury County Comprehensive Plan 2040. In particular, input should be considered concerning possible changes to the future land use map for either additional industrial areas or locations acceptable for an overlay district. As part of the comprehensive plan process, the establishment of a renewable energy policy focused on either industrial expansion or the validation of an overlay district over agricultural land would be a reasonable step for a long-term stable land use policy. Without the comprehensive plan debate, it is the recommendation of staff to adopt Concept #2 which is the retention of the current policy with a revision to the conditional use permit process in the GI Zoning District. Other related issues that could be considered are policies related to the permitting of utility-scale battery systems.

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Appendix

Direction from the Board Of Supervisors – August 8, 2023

WOODBURY COUNTY BOARD OF SUPERVISORS AGENDA ITEM(S) REQUEST FORM

Date: 8/2/2023 Weekly Agenda Date: 8/8/2023

ELECTED OFFICIAL / DEPARTMENT HEAD / CITIZEN: Supervisor J.Taylor/M. Nelson

WORDING FOR AGENDA ITEM:

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

ACTION REQUIRED:

Approve Ordinance ☐	Approve Resolution ☐	Approve Motion ☑
Public Hearing ☐	Other: Informational ☐	Attachments ☐

EXECUTIVE SUMMARY:

The Board of Supervisors unanimously has voiced support for adding solar energy systems (private use) as accessory use in each zoning district and affirming support of solar energy systems (utility scale) in the GI Zoning District. However, given that AP constitutes roughly 75% of Woodbury County's 875 sq. mi and inherent to Agricultural Preservation is the preservation of agriculture, we have an interest in doing what is inherent in the name: preserving agriculture. Toward that end, we are not against solar but think that the following strikes a very reasonable and thoughtful balance, something that can feel rushed in the readings and end up making solar development projects so loose as to not know the desired saturation, legal implications (at least 2 other counties are in lawsuits based on the conditions set after the fact), and how we want to grow the next 25, 50, and 100 years.

Iowa Farm Bureau states regarding energy policy: "Iowa should maintain a balanced electrical energy generation portfolio to ensure energy reliability and resilience at an affordable cost" (2023) and "Iowa's electrical energy policy should not promote new wind and solar energy generation on viable and productive agricultural ground. Existing structures and nonproductive ground should be utilized to expand our energy production" (2023).

BACKGROUND:

Iowa Cattlemen land use policy states: "Whereas the issue of land use in Iowa becomes increasingly important as Iowa population grows and the use of land becomes more intensified, and whereas the cattlemen of Iowa have distinctive problems and interests in the use of land for production of beef cattle; and whereas the complexities of the many issues and interests involved are substantial, not the least of which are the preservation of private property rights and the location of control over land-use decisions. Therefore, be it resolved, land suitable for the grazing of livestock should be deemed agricultural land worthy of preservation and that grazing and be given over recreational and/or urban uses. Be it further resolved, public lands should be subject to the same rules and regulations as privately owned lands."

As the two supervisors representing the most rural areas, we deeply desire the preservation of agriculture while at the same time understanding the need for balance: private property rights, economic development, clean energy, and freedom. Therefore, if the county was to engage in utility-scale solar, at minimum, the county should consider this only if the following is met:

+ A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.

+ A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.

+ A maximum height of no more than 20' for panel structures.

+ Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered "AP."

+ Utility solar can be no more than 2% of all AP "agricultural preservation," preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.

FINANCIAL IMPACT:

(cont...)

+ Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.

+ A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

IF THERE IS A CONTRACT INVOLVED IN THE AGENDA ITEM, HAS THE CONTRACT BEEN SUBMITTED AT LEAST ONE WEEK PRIOR AND ANSWERED WITH A REVIEW BY THE COUNTY ATTORNEY'S OFFICE?

Yes ☐ **No** ☐

RECOMMENDATION:

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

ACTION REQUIRED / PROPOSED MOTION:

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

Approved by Board of Supervisors April 5, 2016.

Direction From the Board of Supervisors – September 26, 2023

WOODBURY COUNTY BOARD OF SUPERVISORS AGENDA ITEM(S) REQUEST FORM

Date: 9/21/2023 Weekly Agenda Date: 9/26/2023

ELECTED OFFICIAL / DEPARTMENT HEAD / CITIZEN: Supervisor J. Taylor/M. Nelson

WORDING FOR AGENDA ITEM:

Give Direction to Planning and Zoning/BOA for Further Considerations During Public Hearings Regarding Utility-Scale Zoning

ACTION REQUIRED:

Approve Ordinance ☐	Approve Resolution ☐	Approve Motion ☑
Public Hearing ☐	Other: Informational ☐	Attachments ☐

EXECUTIVE SUMMARY:

The Board of Supervisors unanimously has voiced support for adding solar energy systems (private use) as accessory use in each zoning district and affirming support of solar energy systems (utility scale) in the GI Zoning District. However, given that AP constitutes roughly 75% of Woodbury County's 875 sq. mi and inherent to Agricultural Preservation is the preservation of agriculture, we have an interest in doing what is inherent in the name: preserving agriculture. Toward that end, we are not against solar but think that the following strikes a very reasonable and thoughtful balance.

During the last item, we asked that consideration of adding utility-scale solar be considered in AP with limitations such as slope (<5%, no more than 2% of all AP be for solar, a "C" for conditional use, notification from 500 ft to 1 mi, at least 51% maintained in agricultural production.)

Upon public hearing comments and further reflection, we offer an alternative to be considered that might be preferable, namely the expansion of "Light Industrial." We would ask that landowners who desire such utility-scale solar be rezoned to this presently constituting only 101 acres of Woodbury County's 570,000 acres. Landowners could continue to farm the land but open up an avenue that would be far preferable than Agricultural Preservation and much more appropriate.

BACKGROUND:

+ A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.

+ A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.

+ No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.

+ Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.

+ A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.

FINANCIAL IMPACT:

None

IF THERE IS A CONTRACT INVOLVED IN THE AGENDA ITEM, HAS THE CONTRACT BEEN SUBMITTED AT LEAST ONE WEEK PRIOR AND ANSWERED WITH A REVIEW BY THE COUNTY ATTORNEY'S OFFICE?

Yes ☐ **No** ☐

RECOMMENDATION:

Move to give direction for a new proposed ordinance in regards to utility-scale solar

ACTION REQUIRED / PROPOSED MOTION:

Move to give direction for a new proposed ordinance in regards to utility-scale solar

Approved by Board of Supervisors April 5, 2016.

Zoning Commission Minutes

Minutes - Woodbury County Zoning Commission Special Meeting – September 11, 2023

The Zoning Commission (ZC) special meeting convened on the 11th of September at 5:00 PM at the Moville Community Center in Moville, Iowa. The meeting was also made available via teleconference.

ZC Members Present:	Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Tom Bride
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Angie Heck, Tony Heck, Kim Luze, Rich Luze, Vicki Atwell, Steve Mrla, Leo Jochum, Bev Jochum, Janet Yanak, Tony Yanak, Dennis Ragan, JoAnn Sadler, Zach Hummel, Wally Wagner, John Johnston, Jeremy Taylor, Kevin Heck, Kyle Gates, Eric Nelson, Elizabeth Widman, Rebekah Moerer, Genise Hallowell, Kalyn Heetland, Josh Heetland, Elisabeth Cendejas, Jesus Cendejas, Robert Knaack, Greg Jochum, Brad Jochum, Tom Jochum, Bob Fritzmeier

Call to Order
Chair Chris Zant formally called the meeting to order at 5:00 PM. Four Commissioners were present. Commissioner Parker was absent.

Public Comment on Matters Not on the Agenda
None

Approval of Previous Meeting Minutes – July 24, 2023
O'Tool motioned to approve the minutes from July 24, 2023. Second: Bride. Motion carried: 4-0.

Formal approval of Zoning Commission Rules of Procedure
At the July 24, 2023 meeting of the Zoning Commission, the rules of procedure were approved and sent to the Board of Supervisors who voted to approve the rules on August 8, 2023. Motion to formally adopt the rules and authorize the chair to sign the Rules of Procedure by Meister. Second: O'Tool. Motion carried: 4-0.

Public Hearing: Proposed Janet Heck Subdivision (Parcel #874724300005)
Priestley read the preliminary report and staff recommendation into the record. Kevin Heck, executor for Janet K. Heck has filed for a one (1) lot minor subdivision on the property identified as Parcel #8747243000005. This subdivision is being completed to separate the house location from the farm ground. This agricultural subdivision proposal has been properly noticed tin the Sioux City Journal legals section on August 29, 2023. The neighbors within 1000 FT have been duly notified via an August 23, 2023 letter about the September 11, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot(s) have adequate access. This property is located in the Agricultural Preservation (AP) Zoning District and is located in the Special Flood Hazard Area (SFHA) – Zone A. The City of Salix waived their extraterritorial review authority with the approval of Resolution No. 2023-20. The area of the subdivision is less than 5 acres and the Base Flood Elevation (BFE) data is not required. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. Motion to close public hearing: O'Tool. Second: Bride. Carried: 4-0. Motion to recommend the approval to the Board of Supervisors as proposed: O'Tool. Second: Meister. Motion carried: 4-0.

Public Haring: Proposed Zoning Ordinance Map Amendment (Rezone) (Parcel #884506200006)
Priestley read into record the preliminary report and staff recommendation. Richard and Kimberly Luze (Applicants/ Owners) have filed a Zoning ordinance Map Amendment application with Woodbury County to request their property (Parcel #884506200006) be rezoned from Agricultural Preservation (AP) Zoning District to the Agricultural Estates (AE) Zoning District. The applicants are making this request to pursue an eventual split of their parcel to facilitate the ability to add a neighboring single-family dwelling in the future as there are presently two houses located within the existing quarter-quarter section. The split will likely consist of approximately three acres from the existing 18+ acres. This will be initiated at a future date. The neighbors within 1000 FT have been notified via an August 23, 2023 letter about the September 11, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. This property is located in the Agricultural Preservation (AP) Zoning District and is not located in the floodplain. This requested zoning change is compliant with the future land use map of Woodbury County's development plan as this area is designated within the rural residential area. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. Staff recommends approval. Priestley has received some phone inquiries regarding future land uses. A Neighboring landowner spoke with concerns of possible subdivisions and increasing density. Priestley stated with Hwy 20 abutting the land, the state

would likely not allow more driveways off Hwy 20. If additional land splits were requested through a subdivision application, there would be public conversations and meetings. Ms. Atwell expressed concerns if a subdivision would go in and how it could affect her cattle farming. Bride stated it would have no impact on what she is currently doing and stated communication between landowners is important. Steve Mrla stated DOT could build a frontage road which would allow more access. Bride discussed how eliminant domain should not be used for private use. Bride motioned to close public hearing. Second: Meister. Carried: 4-0. Motion to recommend the approval to the Board of Supervisors as proposed: Meister. Second: Bride. Motion carried: 4-0.

Public Hearing: Utility-Scale Solar Systems – Consideration of Solar Ordinances for Recommendation(s) to the Board of Supervisors

Priestley read into the record the direction by the Woodbury County Board of Supervisors that occurred on August 8, 2023 for Planning and Zoning and the Zoning Commission to establish/examine a new ordinance as it relates to utility-scale solar systems. The purpose of this public hearing is to receive comments from the public about solar energy systems not limited to utility-scale solar systems, agrisolar or agrivoltaics, and community solar systems as the Commission works toward preparing a recommendation for a proposed ordinance or amendments to the Woodbury County Zoning ordinance to address the permitting process for such systems in industrial and/or agricultural areas. The Board of Supervisors have indicated that "if the county was to engage in utility-scale solar, at minimum, the county should consider this only if the following is met":

- A conditional use permit for AP "C" with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- A maximum height of no more than 20' for panel structures.
- Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered "AP."
- Utility solar can be no more than 2% of all AP "agricultural preservation," preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

Priestley identified additional comments/resources that were received after the printing of the Zoning Commission agenda packet with backup materials. In particular, resources were received from the Center of Rural Affairs, the Northwest Iowa Power Cooperative (NIPCO), the Woodbury County Rural Electric Cooperative, and the Iowa Land & Liberty Coalition. Additionally, Priestley provided a copy of a map illustrating soil content with less than 5% slopes in comparison with soils with CSR2 ratings greater than 65 and 75. Priestley then offered a summary of potential approaches that could be taken to craft an ordinance including which entity would be in charge of the permitting. Looking at other counties, there is a mix of permitting utility-scale solar based on a conditional use permit via the Zoning Commission and Board of Adjustment in comparison with a standalone home rule ordinance where the Board of Supervisors are the permitting body. Priestley indicated that the following concepts would be up for discussion as an ordinance is considered: Certified Abstractor's Listing – Public Notification Area; Site Plan; Setbacks; Height; Protected Areas; Slope; Landscaping/Buffer/Screening; Fencing/Security; Signage; Lighting; Noise; Outdoor Storage; Utility Plan / Utility Connections / Agreements; Floodplain; Habitat and Natural Resource Considerations; Solar Glare Minimization; Weed Control; Grading Plan; Compliance with applicable laws (local, state, federal); Access; Road Use; Aviation Protection; Maintenance, Repair, or Replacement / Repowering; Waste; Soil Erosion / Sediment Control; Stormwater Management; Administration / Enforcement / Violations; Emergency Management; Timeline; Safety; Abandonment / Cessation of Operations; Decommissioning and Reclamation; Fees; Agrivoltaics / Agrisolar; Community Solar Systems; Concentrating Solar Power; Solar definitions; Etc.

The following paraphrased public comments were offered:

Greg Jochum (Salix) addressed the Commission regarding the differences between CSR1 and CSR2 as well as height.

Brad Jochum (Plymouth County) addressed the Commission regarding out of county ownership.

Tom Jochum (Sgt. Bluff) addressed the Commission regarding the advantages of solar.

Eric Nelson (Moville) addressed the Commission regarding solar as a commercial/industrial entity.

Ron Wood (Salix) addressed the Commission regarding the need for solar power generation for growth.

Elizabeth Widman (Sgt. Bluff) addressed the Commission regarding the stewardship and protection of agricultural land from solar development.

Bob Fritzmeyer (Sioux City) addressed the Commission regarding how solar installations help soil to rejuvenate and help the wildlife population.

Leo Jochum (Salix) addressed the Commission regarding renewable energy rates, vegetation for screening, capping AP land at 2%, and soil rejuvenation.

Kim Alexander (Smithland) addressed the Commission regarding money as a principal purpose for solar.

Will Dougherty (Urbandale) addressed the Commission on how MidAmerican works with various stakeholders as they pursue solar projects and offered an opportunity to tour the Port Neal solar site.

Ann Johnston (Salix) addressed the Commission with concerns on the impact of the farm ground and keeping the land the way it is.

Wally Kuntz (Moville) addressed the Commission inquiring about the tax income.

Supervisor Jeremy Taylor (Sioux City) addressed the Commission and responded to Mr. Kuntz's inquiry about generation usage tax.

Bride asked Will Dougherty from MidAmerican where the largest project was in Iowa, Dougherty stated Holiday Creek, north of Fort Dodge has an 800-acre, 100 M/Watt project. 8 acres generally produces 1 M/Watt.

Bride asked if there have been any requests to the Iowa Utilities Board for eminent domain for a commercial solar project.

Eric Nelson asked Dougherty about storage of excess power. Dougherty stated it is not an on-demand system. The grid goes where needed first, then to next load center. Port Neal is an on-demand system. Dougherty stated coal system is used as a back up to solar.

Motion to close public hearing: Meister. Second: O'Tool. Carried: 4-0.

Priestley thanked the attendees for their comments and questions. The information gathered will be taken into consideration as a proposal is prepared and possibly recommended by the Zoning Commission that would eventually go to the Board of Supervisors for up to three hearings. The next meeting of the Zoning Commission will be held on Monday, September 25 at 5:00 PM in the basement meeting room of the Woodbury County Courthouse where the Board of Supervisors meet.

Public Comment on Matters Not on the Agenda
None.

Commissioner Comment or Inquiry
None.

Staff Update
Priestley stated that the minor subdivision and rezone that were recommended this evening will be sent to the Board of Supervisors for consideration at future meeting(s).

Adjourn
Motion by Bride to adjourn; Second by O'Tool. Carried: 4-0. Adjourned: 6:34 p.m.

Minutes - Woodbury County Zoning Commission – September 25, 2023

The Zoning Commission (ZC) meeting convened on Monday, September 25 at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

ZC Members Present:	Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Tom Bride, Barb Parker
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Greg Jochum, Gwen Brunk, Roger Brunk, Russell Petersen, Tom Jochum, Brian Jochum, Leo Jochum, Blair Ulery, Jarrod Ulery, Bill Jochum, Tony Ashley, Dan Bittinger, Alan Fagan, Rebekah Moerer, Elizabeth Widman, Deb Harpenau, Kevin Alons, Jenny Barber, Rex Barber, Jesus Cendejas, Peter Widman, Sophia Widman, Emily Segura, Ann Johnston
Telephone:	Will Dougherty

Call to Order
Chair Chris Zant formally called the meeting to order at 5:04 PM. All five (5) Commissioners were present.

Public Comment on Matters Not on the Agenda
None

Approval of Previous Meeting Minutes – September 11, 2023
Meister motioned. Second: O'Tool. Motion carried: 5-0.

Public Hearing: Townley Addition, Minor Subdivision Proposal on Parcel #894607100007
Priestley read the preliminary report into the record. Donald J Townley, in his capacity as Trustee of the Derrill J. Townley Revocable Trust has filed for a one (1) lot minor subdivision on the property identified as Parcel #894607100007. This subdivision is being completed to separate the house location from the abutting ground. This proposal has been properly noticed in the Sioux City Journal legals section on September 14, 2023. The neighbors within 1000 FT have been duly notified via a September 11, 2023 letter about the September 25, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot(s) have adequate access. This property is located in the Agricultural Preservation (AP) Zoning District and is located in the Special Flood Hazard Area (SFHA) – Zone A. The City of Sioux City conducted extraterritorial review with the acceptance and approval of the final plat with the approval of Resolution No. 2023-0696. The area of the subdivision is less than 5 acres and Base Flood Elevation (BFE) data is not required. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. The Woodbury County Engineer recommended an easement which was prepared. Motion to close public hearing: Bride. Second: O'Tool. Carried: 5-0. Motion to recommend approval to the Board of Supervisors as proposed: O'Tool. Second: Bride. Motion carried: 5-0.

Review of Conditional Use Permit Application: Proposed Telecommunication Tower 120 FT Monopole on Parcel #874316300005
Priestley read the preliminary report into the record. AGM Technology Investment Group DBA Nextlink have filed a conditional use permit application to request to install a 120-monopole communication tower to supply high speed internet to surrounding areas on the property designated as Parcel #874316300005. The proposed location is around 2.5 miles south of Anthon and about 4.2 miles northeast of Oto. This proposal has been noticed in the Sioux City Journals legal section on September 14, 2023. The neighbors within one (1) mile were duly notified via a September 13, 2023 letter about the October 2, 2023 Board of Adjustment public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been requested to comment. This property is located in the Agricultural Preservation (AP) Zoning District. Based on the information received and the requirements set forth in the Zoning Ordinance, the proposal meets the appropriate criteria for approval of the conditional use request. It is the recommendation of staff to approve the proposal. Motion to recommend the proposal to Board of Adjustment: O'Tool. Second: Parker. Motion carried 5-0.

Public Hearing: Solar Energy – Utility-Scale Solar Systems – Consideration of Solar Ordinances for Recommendations(s) to the Board of Supervisors
Priestley summarized the utility-scale solar energy system process including eight topics to be discussed at this meeting. The Woodbury County Zoning Commission has been directed by the Board of Supervisors on August 8, 2023 to establish/examine a new ordinance as it relates to utility-scale solar systems. The purpose of this public hearing is to receive comments from the public about a potential ordinance that could facilitate the permitting of utility solar in the Agricultural Preservation (AP) Zoning District in addition to the General Industrial Zoning District. The Zoning Commission held their first public hearing at the Moville Area Community Center on September 11, 2023. The Board of Supervisors have indicated, through their direction on August 8, that "if the county was to engage in utility-scale solar, at a minimum, the county should consider this only if the following is met":

- A conditional use permit for AP “C” with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- A maximum height of no more than 20’ for panel structures.
- Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered “AP”.
- Utility solar can be no more than 2% of all AP “agricultural preservation,” preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A requirement(or at least strong consideration) that the utility-scale solar project either be on a landowner’s property or that the owner of the land be a resident of Woodbury County.

Priestley also informed the Commission and the public that the Board of Supervisors have an agenda item for their September 26, 2023 meeting that may update the previous direction. The potential new direction would include the following:

- A conditional use permit for AP “C” with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.
- Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.

Matt Countryman (Renewable Energy Equity Partners) addressed the Commission regarding the importance of mitigation and ag restoration of land, and support of an overlay district.

Deb Harpenau (Salix) addressed the Commission supporting utility solar as a clean source of electrical generation.

Wally Wagner (Salix) addressed the Commission about progress, and change he has seen regarding his land, and types of land that would not be good for solar.

Jerrod Ulery (Ulery Energy) addressed the Commission supporting solar energy.

Kevin Alons (Salix) addressed the Commission regarding the use of solar on agricultural land as not an ag use, heavily subsidized, and questioned revenue for county.

Rebecca Moerer (Sioux City) addressed the Commission about not supporting solar in agriculture areas as it disturbs wildlife, and questions whether revenue would go.

Jesus Cendejas (Salix) addressed the Commission expressing concern for landowner stewardship, land depreciation, and impact of solar on neighbors.

Elizabeth Widman (Sergeant Bluff) addressed the Commission offering environmental concerns, impact on neighbors, glare, and noise issues.

Leo Jochum (Salix) addressed the Commission in favor of utility solar indicating that solar can co-exist with reasonable setbacks.

Ann Johnston (Salix) addressed the Commission opposing utility solar and questioning its recyclability

Will Dougherty (MidAmerican Energy) addressed the Commission indicating that there is not a one size fits all approach, plans could be put in place for decommissioning, buffers, and screening.

Leo Jochum submitted information sheet to Commissioners. Motion to accept: O’Tool. Second: Parker. Carried: 5-0. See received content beginning on Page 4 of the minutes.

Priestley presented photo of the utility solar system abutting Port Neal Road. He also should example photos of agrisolar or agrivoltaics.

Priestley provided a range of topics as an overview for a potential ordinance including: appropriate locations; ordinance type(s); process type(s); information collection; permitting requirements; and definitions. Priestley also discussed the concept of an “overlay district” which could be used in conjunction with the existing underlying zoning district. In particular, an overlay district is not intended to be a free-standing zoning district. It is applied to the

project area or footprint via the Zoning Ordinance Map Amendment (rezone) process. Specific standards or requirements can be directly tied to the overlay district. Thus, it is possible to create a series of requirements in which a proposed location would have to be met in order to be considered for the rezone to the overlay district. Therefore, as a hypothetical, the Zoning Commission and Board of Supervisors could consider a Zoning Ordinance Map Amendment (rezone) application to the Utility-Scale Solar Energy Systems Overlay District following the procedures set out in the Ordinance. This overlay could be applied over Agricultural Preservation (AP) zoned land while retaining its base uses. Once, the overlay district has been applied, conditional use permit application could be considered for the footprint of that area by going though a review by the Zoning Commission and consideration of the permit by the Board of Adjustment.

Priestley suggested that the Commission schedule a work study public meeting where the public and commissioners can discuss issues and form a preliminary ordinance or amendments to present to the Board of Supervisors as a recommendation.

Daniel Segura (Sioux City) addressed the Commission questioning the effectiveness of the overlay district as an added step.

Priestley indicated that specific requirements or conditions can be added to the rezone consideration process.

Bride motioned to close public hearing. Second: Parker. Carried: 5-0.

Zellmer Zant stated different applications are considered through different processes. Priestley explained that the overlay district would use the rezone process which requires a public hearing before the Zoning Commission and up to three public hearings before the Board of Supervisors. The Zoning Commission would offer a recommendation to the Board of Supervisors who ultimately would decide the appropriateness of the location. The Conditional Use Permit process would require review by the Zoning Commission and approval by the Board of Adjustment. The Board of Supervisors would be involved with special agreements such as road use and decommissioning. In terms of preparing an ordinance, both the rezone and conditional use processes will need to be defined including the approval/disapproval requirements for both.

Public Comment on Matters not on the Agenda
None

Staff Update
There will be a Board of Adjustment meeting on October 2, 2023 in the basement meeting room of the courthouse. The topic of solar will be shared with the Board only as an information item. The Board of Adjustment does not have a role as to the creation of new ordinances. The Zoning Commission formulates recommendations that are considered by the Board of Supervisors.

Adjourn
Motion by O'Tool to adjourn; Second by Meister. Carried: 5-0. Adjourned: 7:50 p.m.

RECEIVED FROM LEO JOCHUM (SALIX) – 6 PAGES

The first sheet is three farms
located north of CF industries
in the GI zone. Notice the CSR1 is
58 to 60, CSR 2 is around 10 to
12 points higher. This will be consistent
throughout the higher quality soil in this area.

The left side of the next sheet shows where the Mid-America solar project is located
with a CSR 1&2 of 61.9 and 71.1
respectively

The right side of the page
shows over 600 acres
between hiway 75 and
Interstate 29 with very high CSR1 and CSR2.
The farms on these two sheets are within a large area
which spans about six miles from east to west
and are very consistent in quality.
The land being discussed for solar is East of this
area which has heavier soils and lower elevation.

The last three sheets represent farms
located North and East of Salix that have CSR 1
ratings in the mid 40s with the exception of one.
However the CSR2 increases by 30 plus points.
The CSR1 rating is more relevant for land
quality in that area because CSR2 has removed
the rainfall factor.
For this reason I don't think CSR should be
considered for conditional use.

State: **Iowa**
County: **Woodbury**
Location: **12-87N-48W**
Township: **Liberty**
Acres: **72.02**
Date: **9/18/2023**

Jochum Farms Sioux, Iowa

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
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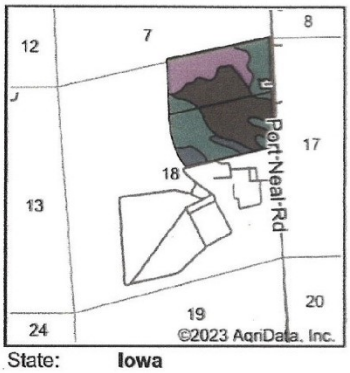
Non-Irr Class	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
IIw	IIw	77	63	
IIIw	IIIw	72	57	
IIs	IIs	72	65	
IIIw	IIIw	45	51	
IIIIw		58	51	
IIIs		46	44	
1.44	***-**	**70.7**	**60**	



State: **Iowa**
County: **Woodbury**
Location: **18-87N-47W**
Township: **Liberty**
Acres: **150.28**
Date: **9/18/2023**

Jochum Farms Sioux, Iowa

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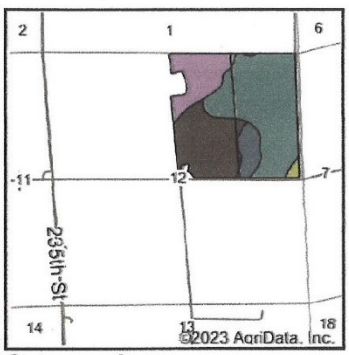
Non-Irr Class	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
IIw	IIw	77	63	
IIs	IIs	72	65	
IIIs		49	33	
IIw		89	74	
1.42	***-**	**70.2**	**58.1**	



State: **Iowa**
County: **Woodbury**
Location: **12-87N-48W**
Township: **Liberty**
Acres: **150.89**
Date: **9/18/2023**

Jochum Farms Sioux, Iowa

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
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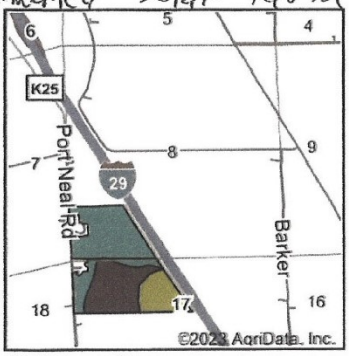
Non-Irr Class	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
Is	Is	72	65	80
IIw	IIw	77	63	58
IIIs		49	33	37
IIw	IIw	91	70	74
IVw		5	37	2
1.36	***-**	**70.1**	**59.2**	***n 65.7**

Mid America Solar Farm



State: **Iowa**
County: **Woodbury**
Location: **18-87N-47W**
Township: **Liberty**
Acres: **123.17**
Date: **9/18/2023**

Jochum Farms Sales, Iowa

Maps Provided By: surety® CUSTOMIZED ONLINE MAPPING
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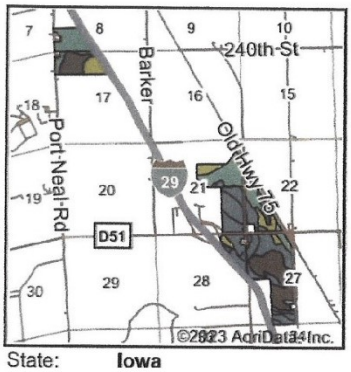
N W E S

end	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	Is	Is	72	65	80
	Iw	Iw	77	63	58
	IIIw		58	51	49
age	1.35	*-	71.1	61.9	*n 67.7



State: **Iowa**
County: **Woodbury**
Location: **21-87N-47W**
Township: **Liberty**
Acres: **646.76**
Date: **9/18/2023**

Jochum Farms Sales, Iowa

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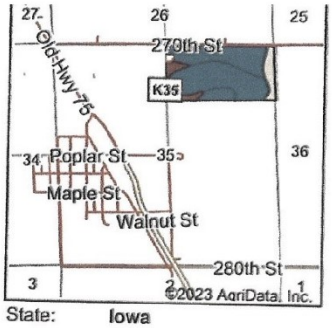
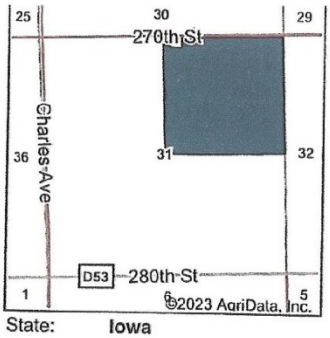
N W E S

Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
Iw	Iw	77	63	58
Is	Is	72	65	80
Iw	Iw	94	79	83
IIw		86	65	60
IIIw		58	51	49
IIIw		81	47	52
Iw		89	84	75
IIw	IIw	72	57	50
IIw	IIw	74	65	61
Iw	Iw	91	70	74
		5	5	
Iw		89	74	71
*-	*-	77.8	64.5	*n 66



State: Iowa
County: Woodbury
Location: 36-87N-47W
Township: Liberty
Acres: 75.03
Date: 5/22/2023



State: Iowa
County: Woodbury
Location: 31-87N-46W
Township: Grange
Acres: 153.97
Date: 4/27/2023

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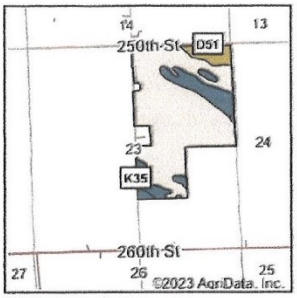
	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	IIw		86	65	60
	IIIw		81	47	52
	IIIw	IIIw	67	42	51
	Iw	Iw	77	63	58
	Iw	Iw	94	79	83
erage	2.27	*-	82.5	57.9	*n 58

gend	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	IIIw		81	47	52
	IIIw	IIIw	67	42	51
rage	3.00	*-	81	47	*n 52

Similar to the original CSR, the CSR2 assumes a SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

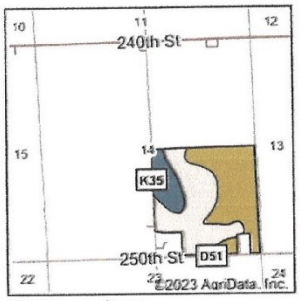
One of the key differences between CSR and CSR2 will be the climate factor. CSR2 will not have a climate factor in it calculations. In the original CSR values, soil scientists made an adjustment based on the geographic region of a soil map unit (SMU). For example, SMUs in Northwest Iowa were adjusted downward more than SMUs in Southeast Iowa. Without a climate adjustment, CSR2 values will have an upward bias in counties located in Northwest Iowa.



State: Iowa
County: Woodbury
Location: 23-87N-47W
Township: Liberty
Acres: 187.71
Date: 4/26/2023

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING ©AgriData, Inc. 2023 www.AgriDataInc.com

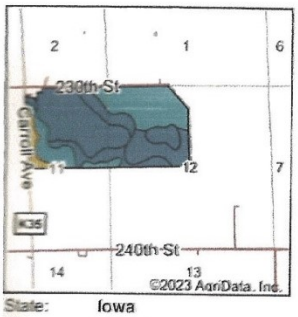
	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	IIIw	IIIw	67	42	51
	Iw	Iw	91	70	74
	IIIw		58	51	49
	IIIw		81	47	52
	Iw	Iw	77	63	58
ıge	2.75	*-	69.9	46.2	*n 53.8



State: Iowa
County: Woodbury
Location: 14-87N-47W
Township: Liberty
Acres: 140.07
Date: 4/26/2023

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING ©AgriData, Inc. 2023 www.AgriDataInc.com

SR2 egend	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	IIIw		58	51	49
	IIIw	IIIw	67	42	51
	IIw		84	63	55
ıd Average	2.87	*-	65.2	48.7	*n 50.6



State: Iowa
County: Woodbury
Location: 12-87N-47W
Township: Liberty
Acres: 306.46
Date: 4/26/2023

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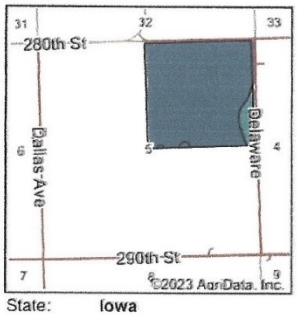
Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
	IIIw	74	51	52
	Iw	Iw	94	79	83
	IIw		84	63	55
	Iw		89	74	71
	IIIw		59	37	49
	1.95	*-	83.2	64.2	*n 64.9



State: Iowa
County: Woodbury
Location: 5-86N-46W
Township: Sloan
Acres: 153.5
Date: 4/26/2023

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING www.AgriDataInc.com © AgriData, Inc. 2023

ld	CSR2 Legend	Non-Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
2%		IIIw	81	47	52
2%		IIIw	74	51	52
5%		Iw	89	74	71
	Weighted Average		2.99	80.7	47.4	*n 52.1

Minutes - Woodbury County Zoning Commission Special Work Session – October 16, 2023

The Zoning Commission (ZC) meeting convened on Monday, the 16th of September, at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

Meeting Audio:
For specific content of this meeting, refer to the recorded audio on the Woodbury County Zoning Commission "Committee Page" on the Woodbury County website:

- County Website Link:
  - https://www.woodburycountyiowa.gov/committees/zoning_commission/
- YouTube Direct Link:
  - https://www.youtube.com/watch?v=lJAj6Xh3cSU

ZC Members Present:	Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Tom Bride, Barb Parker
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Elizabeth Widman, Bill Jochum, Ann Johnston, Leo Jochum, Bev Jochum, Deb Harpenau, Jenny Barber, Emily Segura, Rebekah Moerer, Doyle Turner, Tom Jochum, Paula Wright, Jesus Cendejas Family, Daniel Segura, Will Dougherty

Call to Order
Chair Chris Zellmer Zant formally called the meeting to order at 5:03 PM. All Commissioners were present.

Public Comment on Matters Not on the Agenda
None

Work Session for Proposed Utility-Scale Solar Energy Systems Zoning Ordinance Amendment(s).
Prior to this meeting, the Zoning Commission has held two public hearings to collect comments from the public (Moville – 9/11/23 & Courthouse – 9/25/23). Subsequently, a follow up public hearing will be held on Monday, October 23 at the regular meeting of the Commission that begins at 5:00 PM.

Priestley offered an overview of the evening's proceedings including five considerations for a potential utility-scale solar energy systems ordinance that could be considered by the Zoning Commission in preparation for a recommendation to the Board of Supervisors.

Consideration 1
Consider updating the General Development Plan and/or Future Land Use Map to facilitate the potential expansion of the General Industrial (GI) and Limited Industrial (LI) Zoning Districts and consider adding additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public.

Consideration 2
Consider retaining the current permitting procedures in the Woodbury County Zoning Ordinance but add additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public. Consider retaining the General Industrial (GI) Zoning District as the only allowed location for the consideration of a conditional use.

Consideration 3
Consider establishing a utility-scale solar energy systems overlay zoning district that requires a rezone application to be reviewed by the Zoning Commission and considered for approval by the Board of Supervisors that must meet specific criteria for the appropriateness of whether a particular area in the Agricultural Preservation (AP) Zoning District is suitable for utility-scale solar energy systems. Consider adding additional requirements to the conditional use permitting process to make expectations clear for the applicants, area landowners, and the general public.

Consideration 4
Consider establishing an agrisolar utility-scale solar energy systems overlay zoning district for the specific purpose to coincide with an existing farming operation where each parcel of land shall include over 51% of its usage for farming purposes.

Consideration 5
Consider retaining the current policy for utility-scale solar energy systems (No changes).

The Commission discussed the current process for the permitting of utility-scale solar on agricultural land including the issue of spot zoning and its relationship with the comprehensive plan's future land use map. Priestley referenced the future land use map as a tool for justifying future industrial areas that could facilitate the permitting of utility-solar. He indicated that industrial

areas could be expanded on the map for future consideration of solar. However, it would take going through the comprehensive map approval process of amending the map to reflect additional industrial areas that could later justify additional areas.

Priestley discussed the concept of overlay districts as used by both Scott County and Linn County. Scott County relies on a CSR2 average of 60 or higher to authorize the rezone while Linn County uses a score card or rubric which identifies a number of issues not limited to CSR2, grading, vegetation, and good neighbor payments in order to obtain a permissible score. Priestley indicated that the rezone to an overlay is similar to a conditional use, however, it adds the Board of Supervisors to the process of determining whether or not an area of the county is appropriate for solar. Therefore, the Zoning Commission and Board of Supervisors would be involved in the overlay district rezone process. Additionally, the Zoning Commission and Board of Adjustment would be involved with the conditional use permit process. The Board of Supervisors would be involved with authorizing each individual agreement such as decommissioning, road use, agricultural mitigation, etc.

Zellmer Zant indicated that she likes the involvement of the Zoning Commission, Board of Adjustment, and Board of Supervisors as it gives the public more opportunities to participate in the process. She also questioned whether the overlay district is permanent or temporary. Priestley indicated that depends on how the overlay district is designed. The goal of the district is to allow a new use but retain the base use. The policy for a decommissioning plan will be a determining factor as to whether the specific use of the overlay can continue or conclude.

Bride inquired as to whether there would be any issues if separate overlay districts associated with other projects were treated differently than others. Priestley indicated that there must be clear consistent expectations in the requirements for establishing the district, however there can be some room for conditions if information is identified that should be addressed. Priestley stated there must be a balance, but various options must be exhausted as applicants/developers must know what they are getting into from the start. Priestley discussed other considerations such as separation distances, setbacks, setback waivers, and the floodplain.

Priestley discussed a potential application process and expectations of staff, associated county departments, the commission, and boards. He discussed the concept of the solar-ordinance conditional use as being portable for either the industrial or overlay district. If the overlay district is not used, then an added feature conditional use permit process can be used for the general industrial areas. If the overlay district is used, there would need to be a set of parameters for determining how the overlay gets approved.

Bride shared a concern that if the Commission recommends no changes that the Supervisors might consider going with a stand-alone ordinance which does not involve zoning. Priestley indicated that a stand-alone ordinance does not include the zoning districts. Priestley stated that the Zoning Commission has the right to offer any reasonable recommendation to the Board of Supervisors. He indicated that everyone is mindful of the harvest season, and we will continue to offer multiple opportunities for input.

O'Tool inquired about the downside of using the overlay district. Priestley explained the debate of exclusively relying on CSR which could offer limitations for landowners. Meister mentioned in a previous public hearing questions about the reliability of CSR. He indicated that he likes Linn County's rubric as including CSR and other items. He also inquired who would be monitoring or policing the rubric for items such as grass species. Priestley responded that additional regulations create the need for more bureaucracy or more resources.

Mesiter inquired about how the Board of Supervisors arrived at 2% use of agricultural land. Is that enough or too much? He would like to see more information on how this equals to an existing power plant. Bride indicated that 2% is around 8,400 acres and stated that the Supervisors may be looking for a cap. Will Dougherty of MidAmerican discussed the acres on some existing projects in other counties. Meister offered concerns about the 2%. O'Tool inquired with Will Doughtery about the comparison of solar and wind in terms of megawatt capacity.

Bride inquired about the setbacks and if any of the allowed uses expand outside of the property lines. Priestley indicated the existing zoning ordinance does not include separation distances beyond the lot lines. Setbacks are determined by the zoning district dimensional standards in the zoning ordinance. Bride offered concerns about the impact of setbacks on other property owners. Priestley indicated that setback waivers could be used, and he cautioned about the law of unintended consequences.

O'Tool referenced the 5% slope proposed requirement. Bride inquired as to where the Supervisors arrived at that number. Priestley said it has been offered as part of the consideration for the Commission to research as a possibility. Zellmer Zant referenced the importance of comparing practices with other counties and not necessarily reinventing the wheel. Zellmer Zant also referenced the needs of the cities including community solar. Bride used Moville as an example using an overlay to facilitate solar. He also referenced the use of the percentage as an issue. Priestley indicated that the 51/49% solar ratio is meant to ensure agriculture remains a primary function on ag land.

Mesiter inquired about the proposed one mile notification area. Priestley responded that the purpose is to increase public awareness.

Zellmer Zant inquired with Will Dougherty as to whether these contracts are 10 years and questioned the rapid change of technology. Dougherty discussed maximizing efficiencies as a driving factor of change. He referenced ISU's study pertaining to the coexistence of agriculture and solar with aspects such as grazing. Bride inquired about damage to panels as a result of grazing. Dougherty referenced sheep as an option over others.

Bride inquired about how the land can be put back the way it was through decommissioning and referenced concrete left in the ground as result of wind turbines. Doughtery indicated that solar concrete footings are not being used. Zellmer Zant asked about the Port Neal solar field's footings. O'Tool asked Dougherty about buried power lines and if they can be buried in the floodplain. Priestley indicted that electrical assets must be elevated above the BFE. Bride and Zant indicated there are locations where lines are likely buried in the floodplain.

Zellmer Zant asked Dougherty about how much power gets lost from arrays through distribution. Bride asked Dougherty about the driving factor for locating solar parks.

Zellmer Zant inquired with the Commission about what they like/don't link in the packet considerations.

Parker referenced the Supervisors' discussion point of Light Industrial. Priestley indicated that the limited industrial use can be associated with Consideration #1 which would entail revising the development plan.

O'Tool referenced having a list of bullet points to follow to determine where an area is appropriate or not.

Zellmer-Zant stated that she prefers to not go with the map change as referenced in Consideration #1 because there are other systems in place. She indicated that she likes the conditional use and overlay district format as it includes multiple entities. Bride questioned the ability to accurately be able to paint/assign the industrial areas through mapping.

O'Tool indicated that the overlay could be used in AP areas. Bride discussed the flexibility of the overlay district and the permitting routes. Priestley discussed the creation of the overlay district on a project by project basis. He indicated that an acre cap could be instituted in the ordinance. Zellmer Zent stated that one of the counties she researched had a cap of 400 acres.

Zellmer Zant indicated that the Commission appears to be leaning toward Consideration #3. Priestley indicated that Consideration #4 is not field tested and was only brought into the discussion to discuss the relationship or co-existence of solar and agriculture. Agrisolar could be a part of Consideration #3. Priestley also discussed how battery systems should also be brought into the debate with the growing technology. He made reference to its inclusion in Linn County's ordinance. Will Dougherty discussed batteries in Iowa.

Zellmer Zant inquired if Consideration 5 is off the table. Bride indicated that not doing anything is not what the Supervisors are looking for. Priestley indicated the Commission has the latitude to make a recommendation as you see fit as long as it has an explanation and rationale behind it.

Zellmer Zant referenced the overlap between Considerations 2 and 3. Priestley discussed the overlay district and the overlay rezoning process.

Parker inquired if the county currently has an overlay district. Priestley stated that there is a conservation overlay district that could be petitioned for.

Zellmer Zant questioned the reference to the 10,000 acre limitation, dimensional standards, etc. between Consideration #3 and #4. She referenced the relationship between the 51% agricultural use and the CSR2 rating.

O'Tool questioned whether the CSR2 should be prohibited or not. Meister questioned the inconsistency and reliability of the CSR2.

Doyle Turner offered comments about the accuracy of CSR2. Leo Jochum referenced the difference in rainfall between CSR1 & CSR2.

Zellmer Zant indicated that CSR's may be over 65 in industrial areas. Priestley suggested the comprehensive plan and map allows for industrial areas to include areas of high CSR if the county plans for those areas to be industrial. Meiser is concerned with CSR being the sole factor. Priestley indicated that CSR has traditionally been a part of this county's determination of land use.

O'Tool indicated that it would be appropriate the spell out that a lower CSR would be preferable. Bride indicated that CSR is presently considered in the rezone decision process.

Zellmer Zant inquired about 5% slope for fixed arrays and whether there should be a range. Bride offered concerns about the fixed percentage and discussed erosion. Doyle Turner commented about farming practices across the state and discussed soil erosion including highly erodible land (HEL).

Zellmer Zant inquired about the policy toward the special flood hazard area (floodplain). O'Tool suggested that the standard floodplain regulations could be followed.

Zellmer Zant referenced the conditional use language as being included along with the overlay. Priestley replied that it would need to be discussed and debated.

Zellmer Zant inquired about the definitions and the remaining concerns in the conditional use and overlay section. Priestley suggested that the concepts must continue to be vetted through the County Attorney's office. It will be shared with both parties. Priestley recommended that future work sessions be held following next week's public hearing.

Leo Jochum offered concerns about the comparison between Scott County and Woodbury County and the use of CSR2. Jochum made reference to other counties such as Louisa Couty, Mills County, Johnson County, and Linn County. He referenced the scorecard as used by Linn County and the role of using seed mixes.

Doyle Turner suggested that elected people should have a say on the locations of the solar parks. Turner offered concerns that parameters set could limit the amount of land available for these projects. He recommends giving the Supervisors more than one recommendation which could include the industrial areas. As part of the conditional use, he offered questions about the hurdle of being necessary and desirable.

Public Comment on Matters Not on the Agenda
None

Staff Update
Priestley announced the statewide County Zoning Officials conference in 2024 will be hosted by Woodbury County May 22 – 24 at the Hilton Garden Inn in Sioux City. May 23, Woodbury County has the opportunity to showcase our area, suggestions are welcome, commissioners are encouraged to attend.

Adjourn
Meeting adjourned at 7:30 p.m.

Minutes - Woodbury County Zoning Commission Meeting – October 23, 2023

The Zoning Commission (ZC) meeting convened on Monday, 23rd of September, at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

ZC Members Present:	Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Barb Parker
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Leo Jochum, Bev Jochum, Dan Bittinger, Ann Johnston, Daniel Segura, Elizabeth Widman, Emily Segura, Bob Fritzmeier, Roger & Gwen Burnett, Elizabeth Cindy Haase, Russell Petersen, Hope Lynam
Telephone:	Chad Swanger

For specific content of this meeting, refer to the recorded video on the Woodbury County Zoning Commission YouTube channel: **https://www.youtube.com/watch?v=qNpK3atf1k0**

Call to Order
Chair Chris Zant formally called the meeting to order at 5:08 PM. Tom Bride was absent.

Public Comment on Matters Not on the Agenda
None

Approval of Previous Meeting Minutes – September 25, 2023 and October 16, 2023
O'Tool motioned. Second: Meister. Motion carried: 4-0.

Public Hearing: Back Acre Estates, Second Filing, Minor Subdivision Proposal on Parcel #884702200009
Priestley read the preliminary report and staff recommendation into the record. Chad Swanger, Trustee Terry V. Swanger Trust has filed for a one (1) lot minor subdivision on the property identified as Parcel #884702200009. This subdivision is being completed to separate the house location from the abutting ground. This proposal has been properly noticed in the Sioux City Journal legals section on October 10, 2023. The neighbors within 1000 FT have been duly notified via an October 6, 2023 letter about the October 23, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot(s) have adequate access. This property is located in the Agricultural Preservation (AP) Zoning District and is NOT located in the Special Flood Hazard Area (SFHA). The City of Sioux City have accepted and approved the file plat with the approval of Sioux City council resolution No. 2023-0962. Staff recommends that a pavement agreement be signed with Woodbury County as a condition of approval of this final plat. Based on the information received and requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. Owner has signed a pavement agreement which will be recorded with the final plat. O'Tool motioned to close public hearing. Second: Meister. Motion carried: 4-0. Motion to recommend acceptance and approval to Board of Supervisors by Meister. Second: Parker. Carried: 4-0. Item will be presented to the Board of Supervisors on October 31, 2023.

Public Hearing: Grays First Addition, Minor Subdivision Proposal on Parcel #884209200009
Priestley read the preliminary report and staff recommendation into the record. Marlis A. Gray, has filed for a one (1) lot minor subdivision on the property identified as Parcel #884209200009. This subdivision is being completed to separate the house location from the abutting ground. This proposal has been properly noticed in the Sioux City Journal legals section on October 10, 2023. The neighbors within 1000 FT have been duly notified via a October 6, 2023 letter about the October 23, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot(s) have adequate access. However, there is a rounding error on the plat that must be corrected prior to recording. Priestley confirmed that the rounding error has been corrected and shared with the County Engineer who concurred. This property is located in the Agricultural Preservation (AP) Zoning District and is NOT located in the special Flood Hazard Area (SFHA). Exterritorial review is not required by a city as the property is further than two (2) miles from the closet incorporated jurisdiction. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. Motion to close public hearing: Meister. Second: O'Tool. Carried: 4-0. Parker inquired about a pavement agreement. Priestley indicated that pavement agreements are required when referenced/requested by the County Engineer. Zant asked about the well and septic location and Priestley indicated that the well and septic were on the lot. Motion to recommend acceptance and approval to the Board of Supervisors by Meister. Second: Parker. Carried: 4-0.

Public Hearing: Solar Energy – Utility-Scale Solar Systems – Consideration of Solar Ordinances for Recommendations(s) to the Board of Supervisors
Priestley summarized the purpose of the public hearing. The Woodbury County Zoning Commission has been directed by the Board of Supervisors on August 8, 2023 to establish/examine a new ordinance as it relates to utility-scale solar systems. The purpose of the public hearing is to receive comments and put together a proposal as a possible ordinance or amendments for

solar energy systems not limited to utility-scale systems, agrisolar or agrivoltaics, and community solar systems, together with the Commission addressing the permitting process for such systems in industrial and/or agricultural areas. The Zoning Commission held their first public hearing at the Moville Area Community Center on September 11, 2023. The second was held in the basement of the Woodbury County Courthouse on September 25, 2023. Both public hearings included constituents who offered comments both in support and opposition to the expansion of utility-scall solar in the Agricultural Preservation (AP) Zoning District. Audio of meetings may be accessed for review by visiting the Woodbury County Zoning Commission "Committee" page on the Woodbury County website at: www.woodburycountyiowa.gov. The Zoning Commission conducted a work session on October 16, 2023 to discuss the considerations for an ordinance. The audio for this meeting may be obtained by using the following link: https://www.youtube.com/watch?v=1JAj6Xh3cSU or https://tinyourl.com/Zoning101623

Emily Segura (Sioux City) addressed the ZC about the impact of utility-scale solar on area farmland. She discussed the importance of taking care of the land and questioned the disposal and the economics of sending the panels to the dump. Segura recommended for the ZC to read the article "The Dark Side of Solar Power" by Atalay Atasu, Serasu Duran, and Luk N. Van Wassenhove from the Harvard Business Review which discusses a number of topics including the high cost of solar trash and disposal. She offered concerns about the emittance of toxic waste from the decommissioned panels.

Ann Johnston (Salix) addressed the ZC with concerns about slave labor groups in foreign counties such as the Uyghurs in China who are part of the supply chains that make up 95% of the solar panels worldwide. She referenced that much emphasis has been placed on Scott and Linn Counties but not enough on the western counties in Iowa. Johnston indicated that Sioux County is under a moratorium from solar renewables.

Elizabeth Widman (Sergeant Bluff) addressed the ZC indicating that two of the Board of Supervisors voted against putting solar on ag protected land. She asserted this is not a mandate from the board to ensure solar encroaches on ag land. Putting solar on ag land fundamentally changes the ag protected areas and should only be put in industrial zones. MidAmerican's largest Iowa project is 800 acres but they stated they do not have immediate plans to locate solar in Woodbury County. Widman indicated that the farming between solar panels is experimental and not done in America. MidAmerica stated that cattle grazing underneath solar panels would not work because they would rub against the panels and knock them down. Grass planted underneath would not help wildlife because fences need to be around these areas to protect the public. Widman questioned Daniel Priestley's comment at the previous work session that if applicants were to apply to the county to establish utility-solar they would have to be forthright in the application. However, at the public meetings it has not been mentioned that the pro-solar speakers have already signed contracts with an outside company, and we should be told who the company is. If you add up the acres in the plat book owned by these individuals in my area, it comes out to 2,600 acres or 4 square miles in comparison to the City of Sergeant Bluff which is only 2.11 square miles. All the remaining cities in Woodbury are less than one square mile. Four square miles is about the size of 1,936 football fields. Widman indicated that contracts are for 30 years. If these are the same, she will be 97 years old before the possibility of decommissioning them back to solar and her family will grow up to not see agriculture land. Widman asserted that utility-solar is not agriculture. Widman referenced a 3,000 acre solar project near Rock Branch that will be near her ground. She stated that agricultural preservation is meant to preserve agriculture. Widman asserted these utility-scale solar facilities belong on industrial land.

Elizabeth Cindy Haase (Salix) addressed the ZC offering concerns about the radiation caused by solar panels. She indicated that the electronic magnetic sensitivity causing, headaches, dizziness, nausea, cancer risk has been reported by people who reside close to solar systems.

Motion to close public hearing: Parker. Second: O'Tool. Carried: 4-0.

Zant commented there have been great comments from both sides, wants verification on some facts, Commission will work on collecting and reviewing more information. O'Tool appreciates feedback, good to hear all sides.

No Public Comment on Matters Not on the Agenda

Commissioner Comment of Inquiry
Due to harvest, O'Tool suggested waiting until regular November 27th meeting instead of scheduling a work session, all present commissioners agreed.

Staff Update
Priestley noted subdivisions recommended tonight will be presented to the Board of Supervisors on Oct 31, 2023. Woodbury County Community and Economic Development will be hosting the COZO conference in May of 2024.

Adjourn
Motion to adjourn: Meister. Second: O'Tool. Carried: 4-0.

Minutes - Woodbury County Zoning Commission Meeting – November 27, 2023

The Zoning Commission (ZC) meeting convened on Monday, November 27, 2023, at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

Meeting Audio:
For specific content of this meeting, refer to the recorded video on the Woodbury County Zoning Commission "Committee Page" on the Woodbury County website:

- County Website Link:
  - https://www.woodburycountyiowa.gov/committees/zoning_commission/
- YouTube Direct Link:
  - https://www.youtube.com/watch?v=Me_SPKOFaHM

ZC Members Present:	Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Barb Parker
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Roger Brink, Gwen Brink, Russ Petersen, Bob Fritzmeier, Christopher Widman, Leo Jochum, Bev Jochum, Naomi Widman, William Widman, Ezra Widman, Eliyanah Widman, Aliza Widman, Steve Corey, Denise Knaack, Robert Knaack, Bill Jochum, Tony Ashley, Doyle Turner, Greg Jochum, Tom Jochum, Mike Wright, Jeanette Williams, Mark Wetmore, Bethany Widman, Kalyn Heetland, Josh Heetland, Deb Harpenau, Kevin Alons, Rebekah Moerer, Ann Johnston, Emily Segura, Daniel Segura, Elizabeth Widman, Jenny Barber, Genise Hallowell
Telephone:	Tom Treharne, Robert Wilson

Call to Order
Chair Chris Zellmer Zant formally called the meeting to order at 5:02 p.m. Tom Bride was absent.

Public Comment on Matters Not on the Agenda
None

Approval of Previous Meeting Minutes – October 23, 2023
Motion to approve the minutes: Parker. Second: Meister. Motion carried: 4-0.

Public Hearing: Solar Energy – Utility-Scale Solar Systems – Consideration of Solar Ordinances for Recommendations(s) to the Board of Supervisors
Priestley offered background about the utility-scale solar energy system proposals. Staff and the Commission have been mindful these past several weeks aboutthe harvest season and have used the available meeting opportunities to collect resources and input from the public. During this timeframe, three potential concepts for consideration have been established including: 1) Consideration of a new utility-scale solar energy conditional use process for the General Industrial (GI) Zoning District only; 2) Establishment of an overlay district to facilitate utility-scale solar within the Agricultural Preservation (AP) Zoning District; 3) Adoption of the first concept and then transfer the utility-scale solar debate on agricultural land to the "Comprehensive Plan" adoption process that will likely occur in early 2024.

Priestley stated that he received materials Alex Delworth from the Center for Rural Affairs and asked that they be received into the record. Motion to receive O'Tool. Second by Parker, Approved 4-0. Copy available for review in the appendix.

Bob Fritzmeier (Sioux City) addressed the Commission offering support for a utility-solar overlay district and the evaluation scorecard by referencing positive benefits to the environment. Fritzmeier indicated that 75% of flowering plants are dependent on pollinators, native grasses and plants would provide good habitat, pollination, improve environment, and air quality. He requested that information from USDA, National Institute of Food and US Department of Energy be received and placed into record. Motion by Meister to receive. Second by O'Tool. Carried 4-0. Copy available for review in the appendix.

Kevin Alons (Salix) addressed the Commission offing his opposition to the utility-solar overlay district over agricultural land. He indicated that utility-solar is not compatible with agriculture. He referenced the fall of or degrading of production of solar as systems degrade and he questioned how long they operate. Alons referenced concerns with federal subsidies and indicated that most of the proposed solar options abut the City of Salix.

Robert Wilson (Rangeland Energy Management) addressed the Commission in support of solar projects by discussing the changing nature of projects and compatibility with agriculture with agrivoltaics. He referenced practices such as sheep herding for vegetation control and made reference to CRP land and decommissioning and bond requirements. Wilson addressed solar as replacement when coal plants are retired.

Doyle Turner (Moville) addressed the Commission in support of completing the comprehensive plan for 2040. He indicated that solar doesn't create revenue from property tax, it creates revenue from the electricity that is produced. Turner said that the overlay is something that is worth looking at but not until after the comprehensive map has been developed.

Christopher Widman (Bronson) addressed the Commission indicating that solar does not have a place on agricultural preservation land. He indicated that utility-solar should stay on industrial. Widman referenced the comprehensive plan and said it could be taken into consideration to increase industrial parks and not cherry pick out in the middle of the county. He indicated that contracts signed by landowners in areas are not compatible with the comprehensive plan and should be for the general welfare of the county and not a few. Widman encouraged waiting until the comprehensive plan is complete. Widman made a request that materials including questions be received and placed into record. Motion by O'Tool to receive. Second by Parker. Carried 4-0. Copy available for review in the appendix.

Elizabeth Widman (Sergeant Bluff) addressed the Commission urging them to delay the decision until the comprehensive plan is completed. She indicated that the comprehensive plan is a guide for the next 20 years and that board members and others come and go. Widman asserted that utility-solar belongs on industrial land and the agricultural preservation district is meant to protect ag.

Tom Treharne (NextEra Energy) addressed the Commission inquiring about the consideration of a specific proposal. He requested that in the development of a proposal that it consider issues that would pose challenges such as the 1000 ft. setbacks from dwellings, grading limitations, and the restriction to industrial ground only. Treharne indicated that the restriction to industrial land would create a host of challenges to industrial areas. He indicated that the overlay district is a good way to go and used Linn County as an example.

Roger Brink (Onawa) addressed the Commission indicating that government is paying farms to set aside CRP land and suggested that spraying field is worse than solar panels would be. Brink stated that the solar farms in Monona County don't seem to bother anyone.

Leo Jochum (Salix) addressed the Commission in support of Option #2 to allow for the overlay district. He offered concerns about the discrepancies with CSR1 vs. CSR2 because of the rainfall factor. Jochum discussed compatibility with grass and plant selection to ensure soil quality will be preserved. He stated that no concrete and blacktop is used which allows for transition back to agriculture. Jochum discussed setbacks of 150 to 300 ft from residences and questioned the two mile setback from the cities and the distances from the county right-of-way. He requested for material be received and placed into record by the Commission. Motion to receive Parker. Second by O'Tool. Carried 4-0. Copy available for review in the appendix.

Naomi Widman (Bronson) addressed the Commission and suggested that the motivations of people for ag solar need to be looked at, individuals will profit, not the county as a whole. Widman indicated that she is not opposed to solar, just not on ag land or an overlay district. She stated that the solar debate should be delayed until the comprehensive plan is completed. She indicated that it is important to the best interest of the entire community versus particular individuals who have a very significant financial interest. Widman stated that cherry picking parcels in the middle of ag land is not the best route.

Steve Corey (Salix) addressed the Commission indicating that Salix is in the dark in this debate. He offered concerns with what the county has to deal with as far as carbon sequestration, wind farms, and solar. Corey indicated that he is concerned about subsides and the weight on the taxpayers and the pandora's box this creates.

Greg Jochum (Salix) addressed the Commission offering support for the overlay on the Agricultural Preservation (AP) Zone. He indicated that the infrastructure is already in place with area transmission lines. Jochum is in favor of the overlay scorecard in place of the CSR2 rating that he explained at the Moville meeting. He suggested that the scorecard encourages more desirable native grass, plans, and pollinators. The NRCS would be involved in the selection of the best seed.

Rebekah Moerer (Sioux City) addressed the Commission asking about the benefit to those who live in the cities and to the people who own the land. She offered information about her experience of potentially equipping her property with solar and offered concerns about the expense. Moerer offered concerns about the costs to taxpayers with decommission fees. She suggested that utility-solar should be subject to land restrictions.

Motion to close public hearing by Parker. Second by O'Tool. Carried 4-0.

Priestley discussed the three utility-solar options and suggested for a work session in preparation of a recommendation to the Board of Supervisors.

Parker expressed interest in having a work session to prioritize the concepts before the Commission. She suggested streamlining this with the development plan process. Meister concurred. O'Tool indicated that it would be important to look into whether you expand industrial areas which would be part of the development plan versus an overlay district. He also stated it would be important to get more valid information about land values near solar. O'Tool indicated he would support another work session and expressed the importance of getting this right the first time. Zellmer Zant facilitated a scheduling discussion that resulted in January 17, 2023 at 5:00 PM for the work session. The regular meeting will be held on January 22, 2023 at 5:00 PM.

Public Comment on Matters Not on the Agenda
None

Commissioners Comment or Inquiry
None

Staff Update
None

Adjournment
Motion to adjourn Meister. Second by O'Tool. Carried 4-0. Meeting conclude 6:12 p.m.

APPENDIX

Daniel Priestley Received from Alex Delworth, 11-27-23 - Woodbury County Zoning Commission Meeting

From: Alex Delworth <alexd@cfra.org>
Sent: Monday, November 27, 2023 10:58 AM
To: Daniel Priestley
Subject: Utility - Scale Solar Zoning
Attachments: Policy Approaches for Dual-use and AgriSolar Practices.pdf; making-the-case-for-solar-grazing-web.pdf; Environmental Impacts of Renewable Energy.pdf; Woodbury Zoning Comment.docx.pdf

Good Morning Daniel,

I am reaching out to provide a comment on behalf of the Center regarding the zoning meeting on utility-scale solar. Attached is our comment and a few resources that we shared earlier but may still be useful.

Feel free to reach out if you have any questions.

Thank you,

--
Alex Delworth | Clean Energy Policy Associate
Center for Rural Affairs
1400 Fawcett Pkwy, Suite D2 | Nevada IA 50201
(402) 687-2100 x 1016
alexd@cfra.org | cfra.org

CENTER *for* RURAL AFFAIRS

11/27/23

Daniel Priestley
620 Douglas Street, 6th Floor
Sioux City, IA 51101

Re: Utility-Scale Solar Ordinance

The Center for Rural Affairs is a private non-profit organization that advocates for policies that strengthen rural communities to create a more vibrant future. Renewable energy projects have demonstrated significant potential to bring in new tax revenue, provide additional income for landowners, and create new jobs in rural areas. Given these benefits, we think ordinances regarding wind and solar should be fair and balanced. We commend the zoning board for their time and invitation for public input in this process for the two main proposals.

The first proposal being considered for the Utility-Scale Solar Energy Systems (US-SES) includes prudent requirements around the native vegetation and decommissioning sections. Planting native or perennial vegetation under the panels can increase soil health and provide pollinator habitat over the lifespan of the US-SES. Decommissioning plans ensure that the county won't bear any of the costs when projects are deconstructed and allowing the financial surety to be paid in intervals allows project owners to absorb the expense as an operating cost.

The second proposal for the US-SES Overlay District includes a few items that the commission may want to consider. The setback of 1,000 feet away from occupied dwellings is far greater than the distances we have seen most often, which are between 50-300 feet. However, the inclusion of a waiver will allow impacted landowners the flexibility to make decisions that affect their land.

Finally, the inclusion of a restriction on development on lands with a CSR2 of 65 or more for the US-SES Overlay District will severely limit the potential for solar development in Woodbury County. Using CSR2 designation restricts private property rights for landowners with higher-quality land. Renewable energy facilities can help keep the family farm financially sustainable by providing supplemental income to the operation. Additionally, restricting development on lands with a CSR2 of 65 or more would automatically eliminate almost 50% of land in Woodbury County for potential development.

Solar projects generally have minimal impact on land quality, and land can be returned to farming at the end of the project's life cycle if desired. Practices such as planting native or perennial vegetation under the panels can increase soil health and provide pollinator habitat. Site vegetation can also be managed through grazing, offering local farmers additional income opportunities and providing an avenue for the land to stay in agricultural use at the same time. Additional dual-use practices such as beekeeping and crop production under the panels offer additional opportunities to combine solar and agriculture, demonstrating that clean energy and agriculture do not require an either/or approach.

CENTER *for* RURAL AFFAIRS

This letter includes a few of our solar energy siting resources we hope you will find useful during discussions. One of our recent reports, *Policy Approaches to Dual-Use and Agrisolar Practices*. might be especially helpful given the central discussion around CSR and preserving agricultural lands. Additionally, our full clean energy siting library can be viewed at cfra.org/cleanenergysiting.

Sincerely,

Alex Delworth
Policy Associate
402.687.2100 EXT. 1016
alexd@cfra.org

Resources:
Policy Approaches for Dual-Use and Agrisolar Practices
Amplifying Clean Energy with Conservation
Native Vegetation and Solar Projects in Iowa

1400 FAWCETT PKWY SUITE D2 | NEVADA, IA 50201 | 402.687.2100 EXT. 1016 | CFRA.ORG

Policy Approaches for Dual-Use and Agrisolar Practices

By Heidi Kolbeck-Urlacher, Center for Rural Affairs
April 2023

CENTER for RURAL AFFAIRS

CONTENTS

INTRODUCTION

As demand for clean energy increases, solar deployment is expected to rise. Because utility-scale solar requires considerable land use, many state and local governments are prudently discussing the impact future solar development will have on agricultural lands. The practice of dual-use solar, which refers to allowing two uses to be accomplished in the same space, can address concerns about solar on agricultural land.[1]

Agrisolar, also called agrivoltaics, is the co-location of agriculture and solar within the landscape. It includes solar co-located with crops, grazing, beekeeping, pollinator habitat, aquaculture, and farm or dairy processing. In addition to photovoltaics, it also includes concentrated solar installations.[2] The practice of combining agriculture and solar energy systems can provide numerous economic and environmental benefits. This includes improving economic viability for landowners and agricultural entities, providing beneficial ecological services, and expanding siting opportunities for solar deployment.[3]

The purpose of this report is to provide decision makers and others an overview of policy approaches to combining solar with agriculture and offer considerations on how regulations can facilitate dual-use.

First, we will look at land use and solar, examining the impact expected by the rapid increase of solar development in the near future, and the varying level of responses occurring around clean energy siting regulations and guidance. Next, we will explore the types of dual-use applications and the benefits associated with them, and then move into an overview of policy mechanisms at the federal, state, and local levels that facilitate dual-use. Lastly, we will take a closer look at how local governments have the most impact on solar development, and offer considerations for decision-makers who are interested in creating ordinances or incentives around dual-use.

1 Marieb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
2 Personal communication, Stacie Peterson, Energy Program Director, National Center for Appropriate Technology. March 2023.

LAND USE AND SOLAR

How Much Land Will Be Needed?

As the U.S. moves toward setting ambitious decarbonization goals, solar energy is forecasted to grow considerably. Based on solar deployment scenarios by the U.S. Department of Energy (DOE), ground-based solar technologies may require a land area equivalent to 0.5% of the contiguous U.S. However, it is estimated that this requirement could be met using less than 10% of already disturbed or contaminated lands.[4]

By county, it does not appear that current or planned solar projects would require significant land allocation as a proportion of local area. In an analysis of all counties in the contiguous U.S., the Great Plains Institute found that existing solar development comprises on average 0.04% of land per county and that if all proposed solar projects were built, development would average 0.22% of land per county. As of 2021, no county in the U.S. had more than 4% of total county area in solar development. In contrast, cultivated lands comprise up to 75% of the total county area in much of the central Midwest.[5]

Some state and local governments have created restrictions around using farmland for solar development. However, clean energy development does not appear to pose an immediate threat to the availability of farmland. As of 2022, Iowa had 30.6 million acres of farmland, about 17.5 million of which meets the U.S. Department of Agriculture's (USDA) definition of "prime."[6,7] If all of the 2,290 MW of proposed solar projects in Iowa were sited on prime farmland, it would use only 0.11% of prime farmland in the state.[8]
According to Minnesota Solar Pathways, powering 70% of Minnesota's electrical load by 2050 would require adding 22 gigawatts of solar,

3 Macknick, Jordan, et al. "The 5 Co of Agrivoltaic Success Factors in the United States: Lessons From the InSPIRE Research Study." National Renewable Energy Laboratory. 2022. Accessed March 2023.
4 "Solar Futures Study Fact Sheet." U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, September 2021. Accessed March 2023.
5 Wyatt, Jessi, and Maggie Kristian. "The True Land Footprint of Solar Energy." Great Plains Institute for Sustainable Development, Sept. 14, 2021. Accessed March 2023.
6 "Prime Farmland Definition." Natural Resources Conservation Service, March 2015. Accessed March 2023.
7 "Iowa Solar and Agriculture Fact Sheet." Clean Grid Alliance. Accessed March 2023.
8 Ibid.

1-866-723-8677 | AGRISOLAR@NCAT.ORG | AGRISOLARCLEARINGHOUSE.ORG

which would use 220,000 acres of land. Even if all of this solar were to be sited exclusively on prime farmland, it would still only use 1.32% of prime farmland in the state.[9]

Alternatives to Land-use Restrictions

Even though the land needed for solar development is proportionally low, many state and local governments have enacted or are considering enacting restrictions on clean energy development on farmland. In Iowa, some counties have considered using Corn Suitability Ratings (CSR) to restrict development,[10 11] and state legislators have introduced bills prohibiting solar development on farmland.[12 13 14]

In Minnesota, the Public Utilities Commission's administrative rules restrict large electric generation plants from being located on prime farmland.[15] In Midwest states where a large percentage of the land qualifies as farmland, blanket restrictions such as these can severely impact opportunities for clean energy development.

However, some organizations concerned about the land use impacts of clean energy development have developed siting guidance that mitigates impacts to sensitive areas. For example, the American Farmland Trust, an organization dedicated to the preservation of farmland, has created a series of Smart Solar principles, which they believe meet three goals: accelerate solar energy development, strengthen farm viability, and safeguard land well-suited for farming and ranching.[16]

These principles include:[17]

Prioritize solar siting on buildings and land not well suited for farming
Including buildings, irrigation ditches, brownfields or other marginal lands.

Safeguard the ability for land to be used for agriculture
If developed on farm or ranch land, policies and practices should protect soil health, especially during construction and decommissioning.

Grow agrivoltaics for agricultural production and solar energy
Agrivoltaics sustain agricultural production under/between the solar panels.

Promote equity and farm viability
Farmers and underserved communities should benefit from solar development and should be included in stakeholder engagement processes.

9 "Minnesota Solar and Agriculture," Clean Grid Alliance. Accessed March 2023.
10 Whiskeyman, Danny, "Scott County Board of Supervisors approves new solar ordinance," KWQC, Sept. 20, 2022. Accessed March 2023.
11 Klotzbach, John, "County Considering Wind Turbine Ordinance Changes," Independence Bulletin Journal, Sept. 6, 2022. Accessed March 2023.
12 "Senate Study Bill 1077," Iowa Legislature, Jan. 24, 2023. Accessed March 2023.
13 "Senate File 2127," Iowa Legislature, Jan. 26, 2022. Accessed March 2023.
14 "Senate File 2321," Iowa Legislature, Feb. 17, 2022. Accessed March 2023.
15 "Minnesota Administrative Rules," Minnesota Legislature, Sept. 18, 2009. Accessed March 2023.
16 Sallet, Lori, "Growing Renewable Energy While Strengthening Farm Viability and Safeguarding Healthy Soil," American Farmland Trust, Sept. 22, 2022. Accessed March 2023.
17 Ibid.

This type of siting guidance offers a more nuanced approach to clean energy development. By taking a wider array of factors into consideration, including economic impacts and dual usage, this approach demonstrates that clean energy siting does not require an either/or mindset.

Through thoughtful planning, local decision makers can craft policies that respect the property rights of local landowners and allow them to take advantage of opportunities to diversify their income, while at the same time encouraging dual-use practices that preserve the agricultural values of the local community.

TYPES OF DUAL-USE

There are several types of dual-use practices that can be combined with solar energy sites including cultivating different types of crops such as vegetables and berries, utilizing livestock grazing for managing vegetation, beekeeping, and planting native vegetation and pollinator habitat. These practices can create environmental and economic benefits such as new revenue streams for local farmers, increased pollinators, wildlife habitat, enhanced soil health, reduced erosion, and carbon storage. These projects are not mutually exclusive, however, and multiple activities can occur simultaneously, or at different times of the year.[18]

Crops

A variety of agricultural crops can be grown in co-location with solar installations, including fruit, vegetables, and berries. Any crops that are successful in a region are likely to be suitable for co-location with solar projects. Crops can be grown under the panels, between rows, or outside the perimeter of the installation. Panel height, spacing, water access, equipment needs, and whether the system is fixed or tracking, all will play a role in the success of integrating specific types of crop production into a solar installation. Research is ongoing to better understand the performance and feasibility of co-locating crops with solar energy systems.[19 20]

Iowa State University recently announced it will kick off a $1.8 million, four-year research project on dual-use and food crop production.[21] Similar food crop-focused research is ongoing through the Sustainably Colocating Agricultural and Photovoltaic Electricity Systems (SCAPES) projects at University of Illinois Urbana-Champaign, University of Arizona, Colorado State University, Auburn University, and

18 Macknick, Jordan, et al. "The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons from the InSPIRE Research Study," National Renewable Energy Laboratory, 2022. Accessed March 2023.
19 "Suitable Agricultural Activities for Low-Impact Solar Development," InSPIRE, Aug. 11, 2022. Accessed March 2023.
20 Macknick, Jordan, et al. "The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons From the InSPIRE Research Study," National Renewable Energy Laboratory, 2022. Accessed March 2023.
21 "ISU researchers to study growing crops in solar farm's footprint," Iowa State University, Feb. 15, 2023. Accessed March 2023.

University of Chicago. [22]

Outside of food crops, researchers are also looking into whether more traditional row crops can be co-located with solar installations. For example, Purdue University is conducting field trials combining traditional crops like corn and soy with raised solar panels.[23]

Grazing

Solar grazing is the utilization of livestock, usually sheep, to manage vegetation at solar sites. It takes the place of traditional mowing and offers both environmental and financial benefits. For project developers, contracting with local farmers to use solar grazing as a management tool can reduce operations and maintenance costs. Solar grazing can offer local livestock owners additional pasture opportunities and the opportunity to be paid for a valuable service, increasing income to their business and adding to the economy of the rural communities where these projects are usually located.[24]

22 Harwood, Lori. "UArizona Partners on $10M USDA Grant to Expand Research on Growing Crops Under Solar Panels." University of Arizona, Oct. 6, 2021. Accessed March 2023.
23 Bowman, Sarah, et al. "Can solar panels and row crops coexist on farmland across the skeptical Corn Belt?" Indy Star, Sept. 13, 2022. Accessed March 2023.
24 "Fact Sheet: Making the Case for Solar Grazing." Center for Rural Affairs, Dec. 20, 2021. Accessed March 2023.

Beekeeping

Solar beekeeping is the practice of placing beehives on or near solar sites that have been planted in native vegetation or other pollinator habitats. Solar beekeeping can offer new revenue streams for local beekeepers, as well as the opportunity to gain resiliency from a diverse source of pollen for honey production.

Additionally, the landowner sees a positive impact from improved soil health, and nearby farmers profit from pollination services.[25] Pollinators are critical to crop production, with the USDA estimating that wild and managed bees together add $15 billion in crop value each year.[26] An Argonne National Laboratory case study found that the value of pollinator habitat on U.S. lands designated as proposed or potential solar sites is between $1.5 billion and $3.2 billion.[27]

Native Vegetation and Pollinator-Friendly Solar

Sites with native or naturalized, non-invasive, flowering vegetation are commonly referred to as "pollinator-friendly solar sites." Pollinator-friendly solar project sites offer habitat for honey bees, native bees, and other species of pollinators, all of which can positively benefit local agricultural production. Using native or pollinator-friendly vegetation provides numerous benefits, including reduced erosion, improved water quality and soil health, and increased habitat for wildlife. It can also reduce long-term operation and maintenance costs for project developers and site managers.[28]

25 "Fact Sheet: Making the Case for Solar Beekeeping." Center for Rural Affairs, Dec. 22, 2022. Accessed March 2023.
26 Marieb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
27 "Case Study: Economics of Pollinator Habitats at Solar Facilities." Argonne National Laboratory. Accessed March 2023.

Determining the appropriate types of dual-use projects most likely to be successful at a specific site can be daunting. However, research is ongoing to understand the components needed for successful deployment and operation of agrisolar projects. From 2015 to 2021, the Innovative Solar Practices Integrated with Rural Economies and Ecosystems (InSPIRE) project studied field research sites and identified five key elements that enable success. These elements were explored in the report *"The 5 C's of Agrivoltaic Success Factors in the United States: Lessons from the InSPIRE Research Study."* They include:[29]

Climate, soil, and environmental conditions
The ambient conditions and factors of the specific location that are beyond the control of the solar owners, solar operators, agrivoltaic practitioners, and researchers.

Configurations, solar technologies, and designs
The choice of solar technology, the site layout, and other infrastructure that can affect light availability and solar generation.

Crop selection and cultivation methods, seed and vegetation designs, and management approaches
The methods, vegetation, and agricultural approaches used for agrivoltaic activities and research.

Compatibility and flexibility
The compatibility of the solar technology design and configuration with the competing needs of the solar owners, solar operators, agricultural practitioners, and researchers.

Collaboration and partnerships
Understandings and agreements made across stakeholders and sectors to support agrivoltaic installations and research, including community engagement, permitting, and legal agreements.

POLICY APPROACHES TO DUAL-USE

Policies at the federal, state, and local levels of government can influence the implementation of dual-use solar. These policies interact, but overall, local land-use policies have been shown to be the most significant catalyst or inhibitor of agrisolar development.[30]

We will be looking at a variety of policy approaches at each level of government, including tax incentives, land use laws, renewable portfolio standards, and others.

28 Smith, Cody. "Amplifying Clean Energy with Conservation, Part One: Pollinator-Friendly Solar." Center for Rural Affairs, October 2020. Accessed March 2023.
29 Macknick, Jordan, et al. "The 5 Cs of Agrivoltaic Success Factors in the United States: Lessons From the InSPIRE Research Study." National Renewable Energy Laboratory, 2022. Accessed March 2023.
30 Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.

Federal

Because land use decisions are typically made at the local level, the role of federal policy in encouraging or discouraging dual-use applications is limited. However, two primary incentives exist for solar development—the Business Energy Investment Tax Credit (ITC) and USDA's Rural Energy for America Program (REAP). Additionally, federal investments in dual-use can help bolster the practice.

Tax incentives

The ITC is the sole corporate tax credit available for solar. The tax credit does not include any restrictions that would disallow solar on specific locations, making it acceptable for combination with dual-use.[31]

Land-use laws

Authority over land use in the U.S. is held by state and local governments.[32]

Portfolio standards

Renewable portfolio standards are policies that require electricity suppliers to provide customers with a stated amount of electricity from renewable sources. Although the idea of a federal renewable portfolio standard has been proposed, no such policy currently exists.[33]

Other

REAP grants and loan guarantees offer financial assistance to agricultural producers and small businesses for energy improvements or investments. This can include construction of solar energy systems and does not present conflicts with dual-use integration.[34]

In 2022, DOE announced an $8 million investment in agrivoltaic research projects. The

Foundational Agrivoltaic Research for Megawatt Scale-funding program is aimed at developing best practices, seeking replicable models, providing new economic opportunities, and reducing land-use conflicts.[35] In 2022, USDA's Partnerships for Climate Smart Commodities awarded the University of Arizona $4.7 million[36] and the University of Texas Rio Grande Valley $2.2 million[37] for agrivoltaic research projects.

State

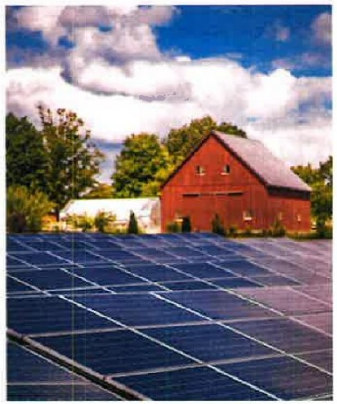
State policy approaches to dual-use include tax and other financial incentives, state-level land-use laws, renewable portfolio standards, and pollinator scorecards. State-level policies interact with local decision making in ways that can either enable or restrict local governments from enacting certain practices or policies.

Tax incentives

States can incentivize solar dual-use practices through land use taxes. If landowners are able to integrate solar development into their farming operation without a land-use tax change, they may be more receptive to the development. For example, Rhode Island has amended its Farm,

31 Ibid.
32 Ibid.
33 "Renewable energy explained: Portfolio standards." U.S. Energy Information Administration, November 30, 2022. Accessed March 2023.
34 Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.
35 "DOE Announces $8 Million to Integrate Solar Energy Production with Farming." U.S. Department of Energy, Dec. 6, 2022. Accessed March 2023.
36 "Media Advisory: USDA awards over $4.7M to support and promote 'climate-smart' food production." University of Arizona, Dec. 19, 2022. Accessed March 2023.
37 Gonzalez, Maria. "UTRGV receives $2.2M grant for 'Climate-Smart' Commodities project." University of Texas Rio Grande Valley, Dec. 12, 2022. Accessed March 2023.

Forest, and Open Space Land law to exempt landowners from a land-use change tax if they are integrating a dual-use renewable energy generation system, which is defined as a wind or solar system that allows agricultural practices to continue around it under normal practices.[38] [39]



Similarly, in 2021, New Jersey enacted a Dual-Use Solar Law, which provides an incentive for keeping land at solar sites in agricultural production. The law established a pilot program allowing unpreserved farmland used for dual-use solar projects to be eligible for farmland assessment under certain conditions.[40]

The AgriSolar Clearinghouse maintains an interactive map detailing dual-use financial incentives throughout the United States, including potential funding sources, assistance programs, utility incentives, and tax breaks. It can be found at: agrisolarclearinghouse.org/financial-information-map.

Land-use laws

State-level land use laws can significantly impact where solar development can happen. For example, Illinois' Agricultural Areas Conservation & Protection Act creates land areas where only agricultural production is allowed.[41]

As dual-use has evolved, debates about whether implementation of these practices at solar sites should qualify as agricultural land use are ongoing. One practice states can employ to help facilitate dual-use at solar sites is to review land use planning goals and definitions of solar generation, farmland, and farm uses to ensure they do not preclude dual-use solar.[42]

Some states have created statewide siting standards to regulate clean energy development. For example, in early 2023, lawmakers in Illinois passed House Bill 4412, which dictates statewide setbacks for wind and solar development.[43] Alternative approaches, such as the creation of state-specific best practices, model ordinances, or voluntary siting matrices offer ways to preserve local control while also providing helpful guidelines for local decision makers.[44] [45]

38 "Rules and Regulations for Enforcement of the Farm, Forest, and Open Space Act." Rhode Island Department of State. Accessed March 2023.
39 Marleb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
40 "Chapter 170." New Jersey Legislature, 2021. Accessed March 2023.
41 Guarino, Jessica, and Tyler Swanson. "The Illinois Agrivoltaics Regulatory and Policy Guide Analyzes State and Local Laws." AgriSolar Clearinghouse, Feb. 1, 2023. Accessed March 2023.
42 Marleb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
43 Moore, Brenden. "New Illinois state energy project standards welcomed by some, resisted by others." The Pantagraph, February 11, 2023. Accessed March 2023.
44 Marleb, Dugan. "Dual-use Solar in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
45 Mouw, Lindsay. "Exploring Siting Guidance: Agriculture Siting Matrices Inform Renewable Energy Siting." Center for Rural Affairs, July 2022. Accessed March 2023.

Portfolio standards

As of 2021, 31 states and the District of Columbia had adopted renewable portfolio standards or clean energy goals.[46] Within these standards, "carve out" provisions can be used to encourage the adoption of certain technologies, such as solar and dual-use. As of 2021, 21 states had solar carve-out provisions in their renewable portfolio standards. Massachusetts' SMART program is one example of such a renewable portfolio standard that also incorporates incentives for dual-use.[47]

Other

Under the Massachusetts Department of Energy's Solar Massachusetts Renewable Target (SMART) program, specific kinds of dual-use solar systems, known as Agricultural Solar Tariff Generation Units (ASTGU), can qualify for financial incentives. To qualify, the land under the solar system must be in continuous agricultural production. The SMART program offers a base cents-per-kilowatt-hour compensation rate for new solar arrays. Systems using these practices that qualify as an ASTGU receive an additional 6 cents per kilowatt-hour to the base rate.[48] [49] [50]

Many states across the U.S. have created policies or programs to encourage or require implementation of pollinator habitat at solar

sites. These initiatives can vary widely in their structure and implementation. One tool is a pollinator scorecard, which provides a model to score pollinator-friendly practices. This score can be used to gauge if a site meets state or local requirements, to designate a site as pollinator-friendly, or to determine if a site qualifies for other types of incentives.[51]

For example, Minnesota state code (§216B.1642)[52] authorizes the Board of Soil and Water Resources to establish statewide guidance for solar project developers aiming for recognition under the Habitat Friendly Solar Program. The statute reads, "...an owner of a solar site implementing solar site management practices may claim that the site provides benefits to gamebirds, songbirds, and pollinators only if the site adheres to guidance set forth by the pollinator plan provided by the Board of Water and Soil Resources."[53] [54]

Local

Local land-use policy is the key leverage point

46 Bowers, Richard. "Five states updated or adopted new clean energy standards in 2021." U.S. Energy Information Administration, February 1, 2022. Accessed March 2023.
47 Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.
48 "Dual-Use: Agriculture and Solar Photovoltaics." University of Massachusetts Amherst. Accessed March 2023.
49 "Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units." Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Department of Agricultural Resources, April 26, 2018. Accessed March 2023.
50 "SMART Program Incentives for Solar Arrays." University of Massachusetts Amherst. Accessed March 2023.
51 "Pollinator-Friendly Solar Scorecards." Fresh Energy. Accessed March 2023.
52 "2019 Minnesota Statutes." Office of the Revisor of Statutes, Minnesota Legislature. Accessed March 2023.
53 "Minnesota Habitat Friendly Solar Program." Minnesota Board of Water and Soil Resources, 2019. Accessed March 2023.
54 Smith, Cody. "Amplifying Clean Energy with Conservation, Part One: Pollinator-Friendly Solar." October 2020. Accessed March 2023.

for enabling development on land suitable for combining agriculture and solar energy production.[55] This is because local governments usually have the most influence over land use, including the ability to regulate zoning and develop siting ordinances that dictate how and where development can occur. Tax incentives and renewable portfolio standards are seen more in state-level policy.

Tax incentives

Local governments have the ability to create tax incentives, though these are more common in state-level policy.

Land-use laws

Land-use laws are the primary lever for local governments to facilitate dual-use. However, despite rapid expansion of solar energy development, many local governments have not addressed siting in their ordinances. In a review of local-level policies in Illinois, researchers found that many counties had no solar siting ordinance on the books, and the counties that did represented drastically different approaches to zoning and land-use policy.[56] As of 2020, only 19% of zoning ordinances in Michigan addressed utility-scale solar siting.[57] When counties lack an ordinance, it can create uncertainty for decision makers and developers, who won't know if the land use is permitted or prohibited.[58]

Solar siting often depends on the county's comprehensive land-use plans and resulting zoning and siting ordinances. When developing ordinances, local decision makers often use the county's land-use planning goals to help guide the process. For example, in Buchanan County, Iowa, county supervisors cited language in their comprehensive land-use plan about preserving agricultural lands with highly productive soils to propose a restriction on clean energy development on lands with high CSR.[59] Expressing similar concern, Scott County, Iowa passed an ordinance restricting solar development on lands with high CSR.[60] [61]

Conversely, some counties have identified renewable energy development as a priority within their comprehensive land-use plan. Linn County, Iowa's comprehensive plan contains a section on renewable energy, which identifies an objective to "encourage development of local alternative and renewable energy resources through identification and removal of regulatory

55 Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.
56 Guanno, Jessica, and Tyler Swanson. "The Illinois Agrivoltaics Regulatory and Policy Guide Analyzes State and Local Laws." AgriSolar Clearinghouse, Feb. 1, 2023. Accessed March 2023.
57 Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.
58 Ibid.
59 Klotzbach, John. "County Considering Wind Turbine Ordinance Changes." Independence Bulletin Journal, Sept. 6, 2022. Accessed March 2023.
60 "Scott County Ordinance NO. 22-04." Scott County, Iowa, Sept. 15, 2022. Accessed March 2023.
61 Whiskeyman, Danny. "Scott County Board of Supervisors approves new solar ordinance." KWQC, Sept. 20, 2022. Accessed March 2023.

barriers."[62]

Additionally, local governments can adopt siting ordinances that dictate specific dual-use management practices at solar sites. For example, ordinances can require sites to be planted in native vegetation or pollinator habitat, or to be maintained by livestock grazing.

Portfolio standards

Both municipalities and utilities have the ability to set their own renewable electricity goals.

Other

Community agrisolar projects can improve local buy-in by providing an opportunity for community members to become shareholders.[63]

CONSIDERATIONS FOR LOCAL DECISION MAKERS: HOW ORDINANCES CAN FACILITATE DUAL-USE

Decision makers who want to facilitate the combination of clean energy development and agriculture should consider the following topics when engaging in the ordinance development or amendment process:

62. "Linn County Comprehensive Plan: Volume 1." Linn County, Iowa, July 19, 2013. Accessed March 2023.
63. Brunswick, Sarah, and Danika Marzillier. "The New Solar Farms: Growing a Fertile Policy Environment for Agrivoltaics." Minnesota Journal of Law, Science & Technology. March 4, 2023. Accessed March 2023.

Land-use Planning

Comprehensive land-use plans are commonly used by counties to help guide development. These plans reflect the values and vision of the community and, in rural areas, they often contain language relating to the preservation of agricultural heritage and farmland. The way this language is interpreted varies widely between counties, and some decision makers may have difficulty interpreting how language around agricultural resource protection relates to dual-use.[64]

Implementation of dual-use practices can provide an alternative to an either/or mindset relating to agriculture and clean energy development, as they allow land to stay in agricultural use. Combining livestock grazing, crop production, and other endeavors with solar sites preserves the agricultural roots of rural communities while also allowing landowners and counties to take advantage of the environmental and economic benefits of clean energy development.

Including renewable-energy development within the county's comprehensive plan can ensure the economic benefits of this development are taken into consideration when ordinances are created or amended in the future. Clean energy can benefit counties in the form of increased tax revenues, lease payments to local landowners, and job creation. Combining this development with dual-use can offer increased environmental benefits and provide new revenue streams for local farmers.

Zoning and Siting Regulations

Local decision makers can ensure that development is done in a way that meets the needs of the community by engaging in a proactive ordinance development process. By taking the time to create an ordinance before development has been proposed, decision makers can ensure there is time to receive

64. Marieb, Dugan. "Dual-use Solar: in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.

community input and feedback on proposed language. Additionally, considerations can be made about setting additional land use expectations, such as dual use.

Counties wanting to enable dual-use integration should consider zoning schemes that allow for mixed land usage. This could include overlay districts, which would allow a special permit for solar in certain zones, or allowing development when certain land use standards are met, such placing a certain percentage of land into pollinator habitat.[65]

Siting regulations should be carefully crafted to ensure they don't restrict dual-use. For example, setting restrictions on panel height or developing overly prescriptive vegetation management requirements can limit dual-use opportunities.

Definitions

When creating definitions within zoning and siting regulations, local governments can ensure they do not preclude dual-use solar. This could include refining definitions for solar generation, farmland, and farm uses to ensure compatibility with desired dual-use practices.[66]

It is also important to determine wich applications and practices will be considered dual-use. For example, in Oregon, a rule was adopted allowing for dual-use practices on high-value soils. However, the rule only specifies agrivoltaics and grazing, meaning pollinator habitats or other conservation dual-use do not qualify.[67]

Interaction of Dual-use Goals

When creating policies, it is especially important to carefully consider how the dual-usage goals interact. Certain requirements may unintentionally restrict beneficial practices. For example, native vegetation or pollinator-friendly habitat requirements may unintentionally limit grazing opportunities if plants on the site are not suitable. In the same vein, to meet pollinator requirements vegetation must be allowed to bloom to ensure it is actually benefiting pollinators, requiring grazing schedules be modified to accommodate bloom times.[68]

It is wise to consider that 100% of land may not be able to be integrated into dual-use. Setting overly strict guidance could deter development if prescriptions are not feasible. Instead, requiring a percentage of land to be used for dual-use purposes introduces a level of flexibility while ensuring that the original intent of the usage policy is preserved.

Site Construction, Decommissioning, and Restoration

Although not directly related to dual-use, local governments can use ordinances to minimize land impacts during the construction and decommissioning of solar systems.

Solar projects generally have minimal impact on land quality, and land can be returned to farming at the end of the project's life cycle, if desired. However, being clear about how land will be

65. Pascaris, Alexis S. "Examining existing policy to inform a comprehensive legal framework for agrivoltaics in the U.S." Energy Policy, December 2021. Accessed March 2023.
66. Marieb, Dugan. "Dual-use Solar: in the Pacific Northwest: A Way Forward." Renewable Northwest, 2019. Accessed March 2023.
67. Ibid.
68. "Fact Sheet: Making the Case for Solar Grazing." Center for Rural Affairs, Dec. 20, 2021. Accessed March 2023.

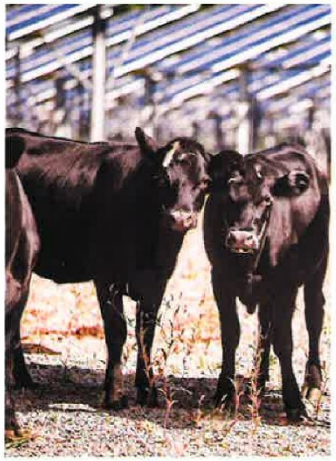
managed during construction as well as once a project is decommissioned can help protect land quality. Local governments can set requirements for construction, vegetation management, and decommissioning that spell out the expectations and obligations. This can also include requiring financial guarantees to ensure funds are available for decommissioning purposes and that local governments are not responsible for costs.[69]

KEY TAKE-AWAYS

Solar development is expected to rise significantly in the coming years. Although deployment models reflect that will require a large amount of land, it is expected it will require 0.5% of land in the contiguous U.S. and, in many cases, can be placed on already disturbed or marginal lands. Even if all proposed projects in Minnesota and Iowa were sited on prime farmland, it would only represent 1.32% and 0.11% of all prime land in those states, respectively.

Clean energy and agriculture do not require an either/or approach. Through thoughtful planning, local decision makers can craft policies that respect the property rights of local landowners and allow them to take advantage of opportunities to diversify their income, while at the same time encouraging dual-use and agrisolar practices that preserve the agricultural values of the local community.

Dual-use and agrisolar practices can include cultivating crops, utilizing livestock grazing, beekeeping, and planting native vegetation and pollinator habitat. These practices can create a variety of environmental and economic benefits, such as new revenue streams for local farmers, increased



pollinators, wildlife habitat, and soil health, reduced erosion, and carbon storage.

Policies exist at the federal, state, and local levels of government that can influence the implementation of dual-use solar and agrivoltiacs. These policies interact but overall, local land-use policies have the most significant role in impacting solar and agrivoltaic development.

By engaging in a proactive ordinance development process, local decision makers can ensure that development is done in a way that meets the needs of their community. Creating an ordinance in advance of development ensures there is time to receive community input and feedback on the proposed language.

69. Kolbeck-Urlacher, Heidi. "Decommissioning Solar Energy Systems Resource Guide." Center for Rural Affairs, June 2022. Accessed March 2023.

This material is based upon work supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Solar Energy Technologies Office Award Number DE-EE0009372.

FACT SHEET:

MAKING THE CASE FOR SOLAR GRAZING

As solar projects across the nation continue to expand, solar grazing has emerged as a valuable tool. Using livestock to manage vegetation at solar sites can enhance site value by keeping land in agricultural use, providing new income streams for local farmers, and adding environmental benefits such as decreased erosion and enhanced soil health.

"Agrivoltaics" is a term used to describe combining agriculture with renewable energy. Other types of agrivoltaics include producing hay, berries, vegetables, and honey at solar sites.[1]

ECONOMICS

Solar grazing is the utilization of livestock, usually sheep, to manage vegetation at solar sites. It takes the place of traditional mowing, offering numerous environmental and financial benefits and meeting clean energy and agricultural goals simultaneously. For project developers, contracting with local farmers to use solar grazing as a management tool can reduce operations and maintenance costs. A 2018 Cornell University study found that managing solar site vegetation with sheep grazing required two and half times less labor, making it less expensive than traditional landscaping.[2] Meanwhile, solar grazing provides livestock owners with additional pasture opportunities and the chance to be paid for a valuable service, increasing income to their business and adding to the economy of the rural communities where these projects are usually located.

ENVIRONMENTAL BENEFITS

Solar grazing can also add environmental benefits to a project site. Introducing livestock onto the landscape and partnering them with native vegetation can improve soil health and reduce runoff. The deep, complex root systems of native vegetation help retain water, reduce topsoil loss, and provide wildlife and pollinator habitat.[3] Sites with native vegetation can have three and one-half times more pollinators than sites without.[4] This vegetation provides habitat for bees and other pollinators, as well as ground nesting birds including sage grouse, pheasants, and quail. Pollinator plantings can coexist with solar grazing with careful planning and management, such as developing a rotational grazing plan that accommodates vegetation bloom periods.[5]

Sources

1 Frenay, Erica. "Solar Grazing: Livestock as Landscapers at Utility-Scale Solar Arrays." Cornell Small Farm Program, July 20, 2020, smallfarms.cornell.edu/2020/07/solar-grazing-livestock-as-landscapers-at-utility-scale-solar-arrays. Accessed November 2021.

2 Kochendoerfer, Nikola, et al. "The agricultural, economic and environmental potential of co-locating utility scale solar with grazing sheep." David R. Atkinson Center for a Sustainable Future, Cornell University, 2019, solargrazing.org/wp-content/uploads/2021/02/Atkinson-Center-Full-Report.pdf. Accessed November 2021.

3 Dreves, Harrison. "Beneath Solar Panels, the Seeds of Opportunity Sprout: Low-Impact Development of Solar Installations Could be Win-Win-Win for Food, Water, and Renewable Energy." National Renewable Energy Laboratory, 2019, nrel.gov/news/features/2019/beneath-solar-panels-the-seeds-of-opportunity-sprout.html. Accessed November 2021.

4 Scholte, Lisa A., et al. "Prairie strips improve biodiversity and the delivery of multiple ecosystem services from corn–soybean croplands." Proceedings of the National Academy of Sciences of the United States of America, Oct. 17, 2017, pnas.org/content/114/42/11247. Accessed November 2021.

5 "Solar Grazing FAQ." American Solar Grazing Association, solargrazing.org/faq. Accessed November 2021.

PLANNING

Including solar grazing as a goal in the beginning stages of project planning will allow developers to tailor sites for optimal grazing management. Solar grazing is most successful when deployed as part of a strategic, rotational grazing plan.

Photo courtesy of Minnesota Native Landscapes

STEP 1

Goal setting

Developers should identify their project goals and build a site plan that reflects the solar grazing co-usage goals. Other beneficial practices, such as pollinator or wildlife habitat and establishment of native vegetation, should be considered, but weighing how these goals can complement or impede each other is important.

STEP 2

Determine site conditions

Developers should develop a timeline for site establishment. Introduction of regular livestock grazing should be withheld until native vegetation at the site is fully established—between one and three years. Flash grazing during this period can be used for weed control. Consulting with local experts is key when selecting a seed mix for the site that is regionally appropriate and suitable for livestock grazing. Other factors that should be considered include site size, accessibility of the site, electricity and water access, and fencing. Although wildlife fencing provides benefits to sites with native plantings, it is not suited for grazing sites due to the gaps at the bottom.[6]

STEP 3

Select livestock species and determine population

Sheep are the most widely used and best-suited livestock for solar grazing.[7] They are smaller than cattle and are not likely to damage equipment. Cattle have been successfully used in solar sites, but panel height becomes a necessary consideration.[8] Determining the number of animals used during grazing management will depend on available forage and the length of the grazing period.

STEP 4

Establish a robust rotational grazing and vegetation management plan for the site

Creating a rotational grazing plan is key to ensuring proper management of vegetation and for the health of grazing animals. Consult with local grazing experts to create a goal-oriented, site-specific plan. Temporary fencing may be employed for "mob" or rotational grazing. Sheep should be moved at least once a week to allow recovery of grazed plants and should not return to a previously grazed paddock for at least six weeks.[9]

Sources, continued

6 Personal communication, Audrey Lopez, Grazing Manager, Minnesota Native Landscapes, October 2021.

7 "What is Solar Grazing?" American Solar Grazing Association, solargrazing.org/what-is-solar-grazing. Accessed November 2021.

8 Sharpe, K.T., et al. "Evolution of solar photovoltaic systems to shade cows in a pasture-based dairy herd." Journal of Dairy Science, March 2021, sciencedirect.com/science/article/pii/S0022030220316730. Accessed November 2021.

9 Frenay, Erica. "Solar Grazing: Livestock as Landscapers at Utility-Scale Solar Arrays." Cornell Small Farm Program, July 20, 2020, smallfarms.cornell.edu/2020/07/solar-grazing-livestock-as-landscapers-at-utility-scale-solar-arrays. Accessed November 2021.

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CONSIDERATIONS

Developers and farmers must work together to develop contracts that serve the needs of both parties. Longer-term contracts allow farmers to make investments in best practices. Site managers should ensure fencing, gates, and water access are maintained.[10] Carrying proper insurance and having clear contracts that spell out who is allowed at the site is important for the safety of the animals, equipment, and people.

SOLAR GRAZING AND SEED MIXES

Seed mixes should be regionally appropriate and site-specific. Consult with local experts to develop a location-specific mix. Many seed mixes can support both pollinators and livestock. If pollinator habitat is a goal, carefully timing grazing schedules is necessary to accommodate bloom times.

POLICIES

Policymakers can develop zoning and tax policies that incentivize beneficial practices, such as solar grazing. It is important to recognize that vegetation management goals may differ from site to site. Ordinances that include native vegetation and/or pollinator-friendly rules should not be so strict that they reduce opportunities for other beneficial practices, such as grazing.

- In 2021, New Jersey enacted a "Dual-Use Solar Law" which provides an incentive for keeping land at solar sites in agricultural production. S3484 established a pilot program allowing unpreserved farmland used for dual-use solar projects to be eligible for farmland assessment under certain conditions.[11]
- Under the Massachusetts Department of Energy's Solar Massachusetts Renewable Target (SMART) program, specific kinds of dual use solar systems, known as "Agricultural Solar Tariff Generation Units," can qualify for financial incentives. To qualify, the land under the solar system must be in continuous agricultural production.[12]

Sources continued

10 "Recommendations." American Solar Grazing Association, solargrazing.org/recommendations/. Accessed November 2021.

11 "Chapter 170." New Jersey Legislature, 2021, njlegislature.gov.us/2020/Bills/PL21/170_.PDF. Accessed November 2021.

12 "Dual Use Agriculture and Solar Photovoltaics." University of Massachusetts Amherst, Center for Agriculture, Food, and the Environment, May 2016, ag.umass.edu/clean-energy/fact-sheets/dual-use-agriculture-solar-photovoltaics. Accessed November 2021.

FACT SHEET: ENVIRONMENTAL IMPACTS OF RENEWABLE ENERGY— WIND AND SOLAR

Renewables have been the fastest growing energy source since 2017 when costs reached a key milestone. Costs dropped enough to make wind and solar the cheapest form of conventional energy.[1] Rural communities often carry this infrastructure. This fact sheet looks at the environmental impacts of wind and solar development.

WIND

Bird and bat species are a top concern for protection from wind turbines.

Especially key protected, threatened, or endangered species: Indiana bat, northern long-eared bat, little brown bat, tri-colored bat, and bald eagles.

Wind developers are now performing acoustic surveys and radio tracking of threatened species to understand migration, mating, and nesting habits.

- Each developer must file for an Incidental Take Permit with the nearest U.S. Fish & Wildlife Service Ecological Services Office, which sets a limit to the amount of damage by wind turbines to vulnerable species.

That application includes a Habitat Conservation Plan detailing how the developer will not only avoid damaging, but protect vulnerable species.[2]

- These plans are part of complying with the Endangered Species Act.[3]
- Operating wind farms must conduct baseline bird and bat fatality monitoring in compliance with state and federal law.

Turbines are checked weekly for bird and bat fatalities.

- Investing in habitat conservation and considering the nesting and migration patterns are also options to meet requirements.

1 "Levelised Cost of Energy and Levelized Cost of Storage 2018." Lazard, Nov. 8, 2018, lazard.com/perspective/levelised-cost-of-energy-and-levelized-cost-of-storage-2018/. Accessed December 2018.
2 "Habitat Conservation Plan Handbook." U.S. Fish & Wildlife Service, Jan. 18, 2018, fws.gov/endangered/what-we-do/hcp_handbook-chapters.html. Accessed December 2018.
3 "Habitat Conservation Plans: Section 10 of the Endangered Species Act." U.S. Fish & Wildlife Service, Aug. 29, 2018, fws.gov/southwest/endangered/permits/hcp/hcp_wofactsheet.html. Accessed December 2018.

SOLAR

- Land used for utility scale solar projects can cause habitat loss.
  - Pollinator-friendly solar sites can combine habitat for pollinators with solar arrays, and has been supported through state policy in Maryland, Minnesota, New York, and Illinois.[4,5]
- Three states—Connecticut,[6] North Carolina,[7] and Washington[8]—have passed policies restricting siting solar projects on agricultural land through either state legislation or county ordinances.
  - As an alternative, low-impact solar and co-location of solar and agriculture is a growing area of research with three categories of design:
    1. Solar-centric
    2. Vegetation-centric
    3. Co-location[9]

Solar developers have found that combining solar generation with pollinator habitat or grazing land can reduce operations and maintenance costs.[10]

4 "Conservation: (525 ILCS55/1) Pollinator Friendly Solar Site Act." Illinois General Assembly, Aug. 21, 2018, ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3900&ChapterID=44. Accessed December 2018.
5 "Department of Natural Resources - Solar Generation Facilities - Pollinator-Friendly Designation." General Assembly of Maryland, June 1, 2017, mgaleg.maryland.gov/webmga/frmMain.aspx?id=SB1158&stab=01&pid=billpage&tab=subject3&ys=2017rs. Accessed December 2018.
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7 "PB 16-28." Currituck County Board of Commissioners, Feb. 20, 2017, co.currituck.nc.us/wp-content/uploads/2017/12/pb-16-28-currituck-county-udo-amendment-chapter-4-use-standards-02-20-2017.pdf. Accessed December 2018. This ordinance was put in place in February 2017 and repealed 18 months later.
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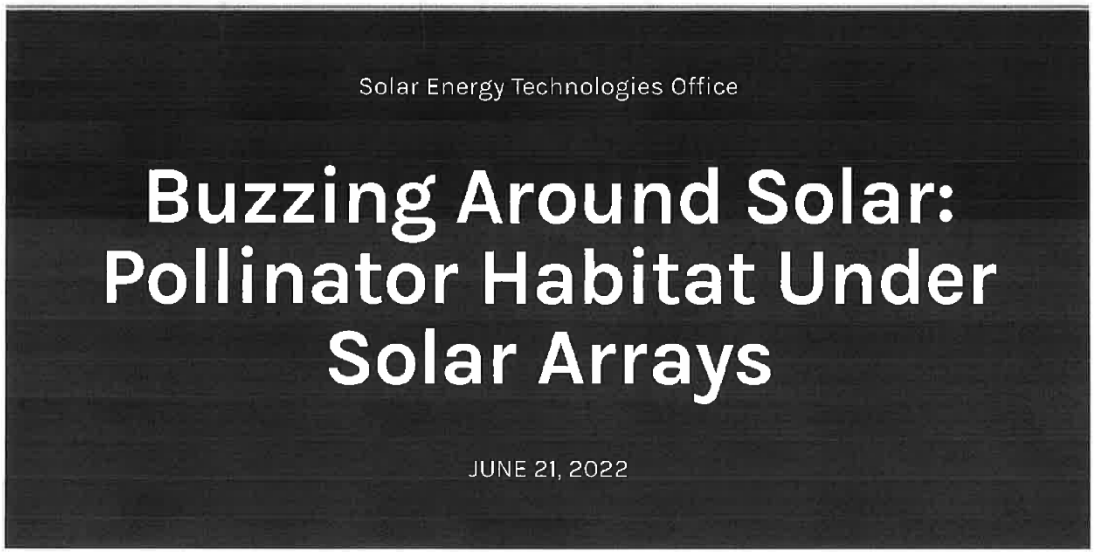
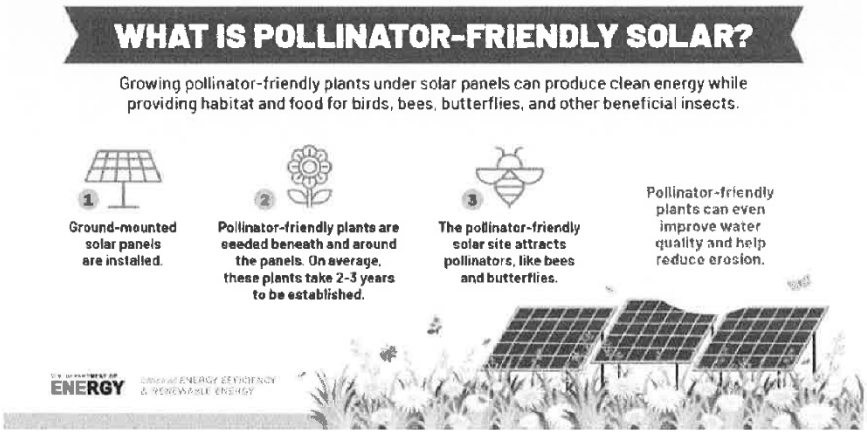
9 Mow, Benjamin. "Solar Sheep and Voltaic Veggies: Uniting Solar Power and Agriculture." U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy-National Renewable Energy Laboratory, June 6, 2018, nrel.gov/state-local-tribal/blog/posts/solar-sheep-and-voltaic-veggies-uniting-solar-power-and-agriculture.html. Accessed December 2018.
10 Macknick, Jordan. "Overview of Opportunities for co-location of agriculture and solar PV." U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy-National Renewable Energy Laboratory, June 14, 2016, canvt.org/wp-content/uploads/2013/01/NREL-Overview-of-opportunities-for-co-location-of-agriculture-and-solar-PV-1.pdf. Accessed December 2018.



By: Michele Boyd, Program Manager, Strategic Analysis and Institutional Support

Received from Bob Fritzmeyer, 11-27-23 - Woodbury County Zoning Commission Meeting



Pollinators—such as bees, butterflies, and other insects—are critical to the success of about 35 percent of global food crop production. In order to thrive, pollinators must have a suitable habitat. Establishing pollinator-friendly plants under and around ground-mounted solar arrays has the potential to provide this critical habitat and benefit both the pollinators and nearby agriculture. But a number of important questions remain about the impacts of pollinator-friendly solar and how to implement it at a large scale.

The U.S. Department of Energy Solar Energy Technologies Office (SETO) is working to better understand the economic, ecological, and performance impacts of co-locating pollinator habitat and solar arrays. This research is part of our broader agrivoltaics research, which studies how solar and agriculture can co-locate. Some of that research includes:

- Seed mixes and stormwater management in Georgia: A pollinator-friendly solar farm on former U.S. President Jimmy Carter's land is one of five solar sites being used to study stormwater infiltration and runoff at solar farms. They are testing three different seed mixes, including the

industry-standard grass, a low-diversity pollinator mix, and a high-diversity planting pollinator mix.

Black-eyed Susan flowers are blooming at sunrise at the Carter Farms solar site.

Jill Stuckey

- Ecological and performance impact studies in the Midwest: SETO funded a project led by the University of Illinois to investigate solar co-located with pollinator plantings at large-scale installations, with teams of researchers working at seven separate sites in the Midwest. From their findings, they will develop a pollinator planting manual, cost-benefit calculator, native seed mix selection tool, and pollinator assessment tool. Together, these tools will address questions on project cost, return on investment, logistical needs, and site- or project-specific constraints.

National Institute of Food and Agriculture
UNITED STATES DEPARTMENT OF AGRICULTURE

Protecting Pollinators Critical to Food Production

June 10, 2022

NIFA AUTHORS

Margaret Lawrence, Writer-Editor

Pollinators help ensure the world eats. Scientists estimate that about 75% of the world's flowering plants and about 35% of the world's food crops depend on animal pollinators to produce.

While more than 3,500 species of native bees help increase crop yields, pollinators include many more species than just bees. Flowers can be pollinated by both insects and animals - such as bees, wasps, moths, flies, butterflies, birds and even small mammals such as bats.

Despite their importance, many pollinators are declining in numbers, posing a threat not only to the world's ecosystems but to global food security as well. To help address overall pollinator decline, USDA's National Institute of Food and Agriculture (NIFA) partners with Land-grant Universities (LGUs), U.S. government laboratories, and private and nonprofit organizations to support research, education, and extension programs advancing pollinator health.

Since 2020, NIFA has awarded $15.98 million via more than 40 competitive grants including Agriculture and Food Research Initiative grants as well as non-AFRI grants. Additionally, NIFA capacity funding to Land-grant Institutions supported 28 additional research and Extension projects.

Multi-State Project Reaping Rewards

NIFA's Multi-State Research Fund also provides crucial support to projects that incorporate multiple institutions tackling vital projects. One such grant brought together the **University of California**, **Cornell University**, **Cornell Cooperative Extension**, **Delaware Cooperative Extension**, **University of Illinois**, **Louisiana State University**, **University of Massachusetts**, **Michigan State University**, **University of Minnesota**, **Mississippi State University**, **University of Nebraska**, **University of New Hampshire**, **North Carolina Cooperative Extension**, **Pennsylvania State University**, **Purdue University**, **Rutgers University, University of Vermont**, and **Virginia Tech.** Their goal—harness chemical ecology to address agricultural pest and pollinator challenges. To reduce reliance on pesticides, scientists explored ways to harness natural plant defenses, such as emitting chemicals that slow insect feeding, inhibit infections, call beneficial insects to their aid or warn other plants.

Received from Christopher Widman, 11-27-23 - Woodbury County Zoning Commission Meeting

To: Woodbury County Zoning Commision

Questions Submitted at Nov 27, 2023 meeting

1. Does the county have a map showing where the signed solar easements are located in the county? If so, can you provide this map to the public with a listing of parcels and owners?

2. Can the Solar Utilities within Ag Preservation Land designate a setback from a residence to a one mile radius? Studies have shown that property values within 0.5 miles of solar farms are negatively impacted by solar farms (See attached article or link) (link: Do Solar Farms Lower Property Values? A New Study Has Some Answers - Inside Climate News)

3. If the county grants an overlay within Ag Preservation Land and does not designate the setbacks greater than 0.5 miles, does the county think there is precedent to win a legal case brought from landowners within 0.5 miles of the solar farms who believe their land values are decreased due to the solar farm? Please provide a listing of legal cases that show legal precedent has been made in other counties.

4. Per the packet provided at the meeting today, it appears that the majority of the people who have spoken at prior meetings in favor of the solar projects on Ag Preservation land have signed easements with solar companies or utility companies. (See attached listing of landowners and parcels that have signed easement contracts.) It would appear those people are primarily promoting private interest rather than the general welfare of the county. If the Woodbury County Zoning Commission makes the changes to allow an overlay that would allow these landowners with existing easement contracts to build solar utilities on the Ag Preservation Land, does the county believe they can show that the changes were made within a comprehensive land use plan and promotes the general welfare of the county? If the county begins making changes to include more parcels from the landowners with easements, it could be seen as promoting private interest rather than the general welfare of the county.

5. In the packet provided it discusses the possibility of using the original Corn Suitability Rating (CSR) Vs the Corn Suitability Rating 2 (CSR2). The county assesses taxes based on CSR2 not CSR. When the county began using CSR2 to assess property taxes, property owners in the river bottom tried to argue that it was not a suitable rating for the land. However, the county and state disagreed and stated that CSR2 was a suitable rating for Ag Land. If the commission decides to use a CSR rating instead of a CSR2 rating, please provide evidence as to why they believe the old rating is better than the new rating? If they believe CSR values are more correct than CSR2, should the commission petition the Treasurer's Office to change the property valuations from CSR2 back to the old CSR valuation that was used over 10 years ago?

Christopher Widman
1866 220th Street
Bronson, IA 51007

Clean Energy

Do Solar Farms Lower Property Values? A New Study Has Some Answers

Researchers looked at sale prices of 1.8 million homes near utility-scale solar plants in six states—the largest analysis ever done on this subject.

By Dan Gearino
March 15, 2023

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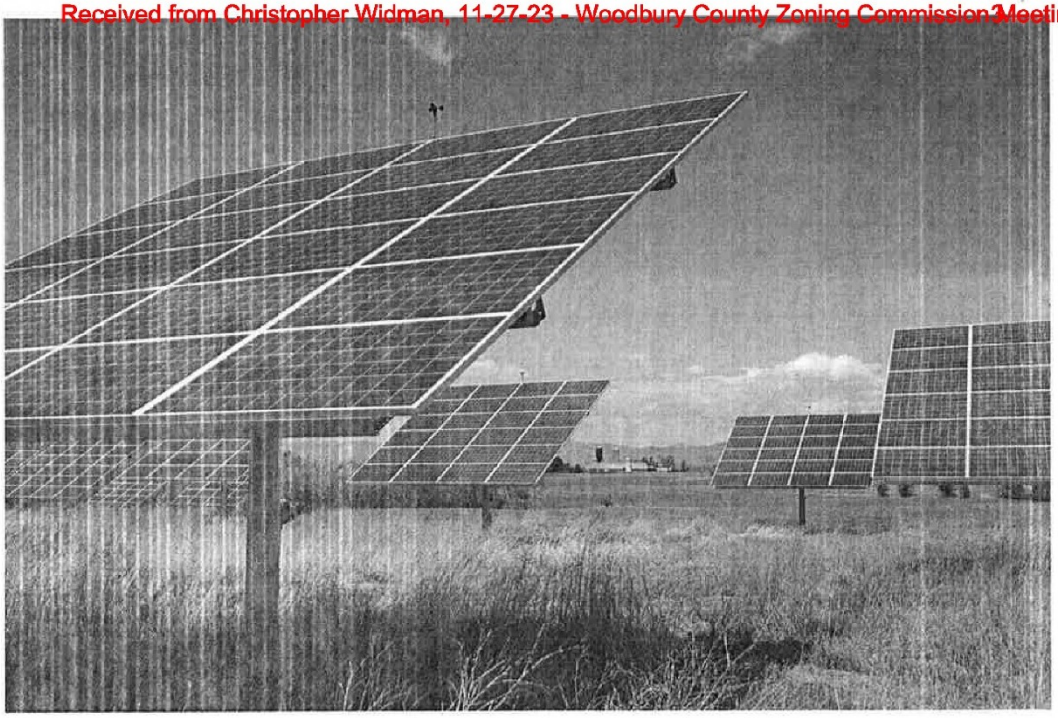


Solar tracker panels follow the sun's path on May 17, 2014 on a Champlain Valley dairy farm near West Haven, Vermont. Credit: Robert Nickelsberg/Getty Images

A new study finds that houses within a half-mile of a utility-scale solar farm have resale prices that are, on average, 1.5 percent less than houses that are just a little farther away.

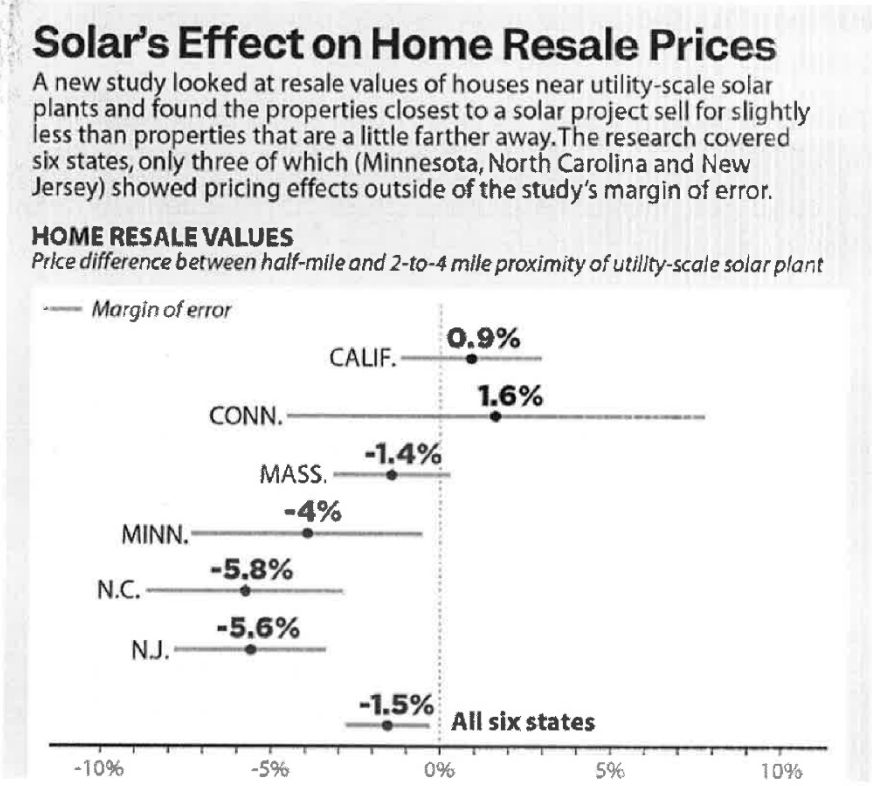
The research from Lawrence Berkeley National Laboratory helps to refute some of the assertions of solar opponents who stoke resistance to projects with talk of huge drops in property values. But it also drives a hole through the argument made by people in the solar industry who say there is no clear connection between solar and a drop in values.

The authors analyzed 1.8 million home sales near solar farms in six states and found diminished property values in Minnesota (4 percent), North Carolina (5.8 percent) and New

were within their margins of error, which means the price effects were too close to zero to be meaningful. The paper was published in the journal Energy Policy.
The authors accounted for differences in property features, inflation and other factors in order to isolate the effect of proximity to solar.

Ben Hoen, a co-author and research scientist at the Lawrence Berkeley lab, said the numbers are clear but additional research is needed to understand what's happening on the local level to lead to these price effects.

"We have a sense of the 'what,' but we don't know the 'why,'" he said.



For example, he doesn't have a thorough explanation for why the price differences are higher in some states than others.

The researchers chose this group of states because they were, except for Connecticut, the top five in the country for the number of solar installations of at least 1 megawatt as of 2019. They included Connecticut because it is an example of a state with a high population density near solar projects.

Hoen emphasized that the results show a period in time, with transactions that occurred from 2003 to 2020, and may not reflect prices right now.

Also, he noted that the paper's analysis doesn't take into account any of the financial benefits of solar for landowners and communities, which may include payments from the developer and a decrease in local taxes.

The study is being released at a time of rapid expansion in the number and size of solar projects, which is a key part of the country's push to reduce the emissions that contribute to climate change.

The scale of growth in solar development has been met with an intensifying resistance in local communities where some people argue that the projects are ugly and pose a threat to property values and human health. Solar opponents amplify these concerns on social media.

Of all the arguments against solar, the idea that it will hurt property values has been among the most potent, based on prior reporting by Inside Climate News about the local debates. At public hearings and in comments filed with regulators, some residents talk about how they fear reductions of 40 percent or more.

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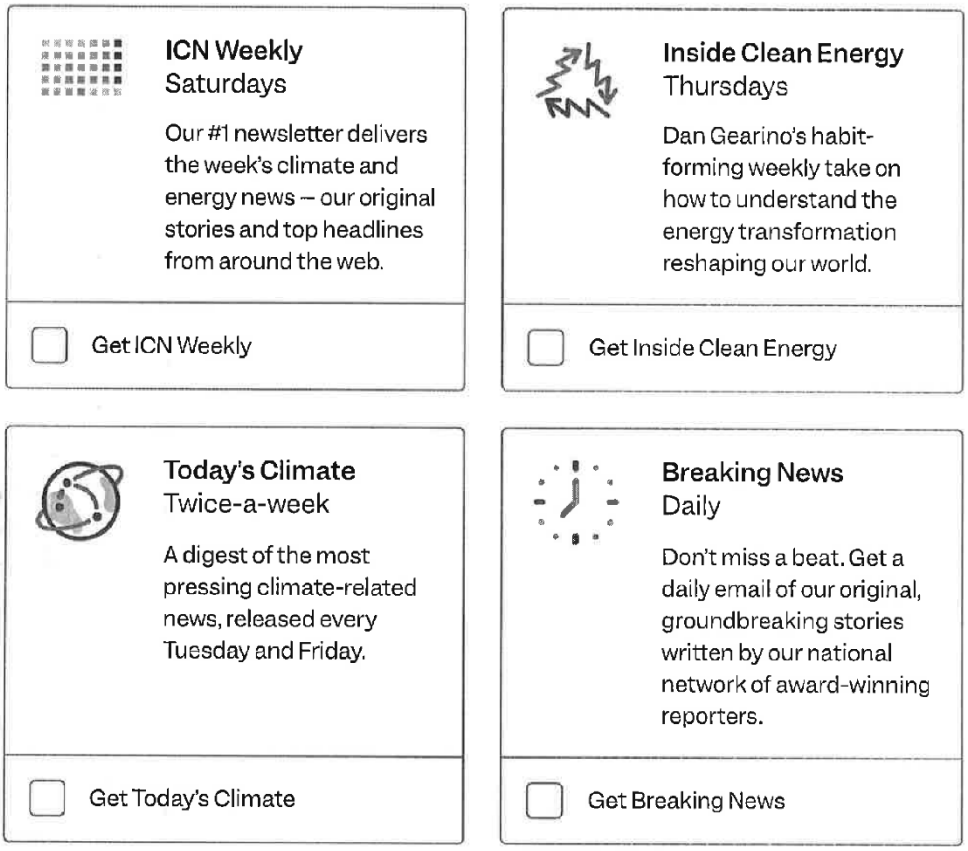

Asked if he saw anything in his data to support these claims, Hoen said there is "no evidence that an effect that large exists."

Jeffrey Jacquet, an Ohio State University professor who has written about conflicts over renewable energy projects, said the new paper is impressive in its depth and shows the need to ask more questions about the benefits and drawbacks of

"I think the takeaway is that the effect of renewables on property values is small on average, but it is not zero, and we need to correct for that negative impact," he said.

Before this latest study, the largest one done in the United States was in 2020 by researchers at the University of Rhode Island who looked at about 400,000 real-estate transactions in Rhode Island and Massachusetts. They found that the value of houses within one mile of a solar project decreased by an average of 1.7 percent following construction of the project.

The two studies each show a small decrease in values of properties near solar projects, although Hoen cautioned against comparisons because the two are different in their geographic scope and the number of transactions reviewed.

The Solar Industry Reacts

Clean energy advocates and the solar industry may be pleased that the study finds no large negative effect on property values, but they also are wary of the core finding that there is a measurable, albeit small, effect.

"There is nothing revelatory in this study—the results are not definitive and only cover a narrow data set," said Jason Ryan, a spokesman for the American Clean Power Association, a trade group, in a statement. "The report, which found no evidence of adverse impacts on property values in half the states studied, is largely consistent with many prior studies finding that solar projects don't adversely affect property values. Appraisal data from across the country also show similar conclusions."

property appraiser in Raleigh, North Carolina. He has spent about 15 years analyzing property values near solar projects. He often works on behalf of solar companies in regulatory cases before state and local regulatory agencies.

"You can't really measure things that small in real estate from an appraisal standpoint," he said.

Among the many problems with drawing conclusions from such a small difference is that there are many factors at play, including the desirability of the house and the features of the land, he said. The presence of a solar project is one of those factors, and it's difficult to say how much weight it has.

In his experience, solar projects do not lead to a pattern of a negative effect on the values of nearby properties.

Kirkland is far from alone in coming to this conclusion. In Chisago County, Minnesota, which has more solar projects than any other county in the state, officials have been monitoring real-estate transactions to try to detect any changes in resale prices as a result of solar development. They haven't found any negative effects, either in 2017 after the construction of the state's largest solar array, or as recently as December, according to the county assessor's

Hoen said that a 1.5 percent difference may not be significant for an appraiser looking at a small number of transactions, but it is significant in a statistical analysis like the one in the paper.

And, even if there are many factors at play, he is confident that proximity to solar is a strong factor explaining the price difference.

He is eager to ask follow-up questions in additional studies to get an idea of what solar-related factors are contributing to negative effects of pricing. For example, he wonders if an increase in local controversy surrounding a project leads to larger decreases in property values.

"Unpacking these types of mechanisms will take further study," he said.

Share this article

Dan Gearino

Clean Energy Reporter, Midwest, National Environment Reporting Network

Dan Gearino covers the midwestern United States, part of ICN's National Environment Reporting Network. His coverage deals with the business side of the clean-energy transition and he writes ICN's Inside Clean Energy newsletter. He came to ICN in 2018 after a nine-year tenure at The Columbus Dispatch, where he covered the business of energy. Before that, he covered politics and business in Iowa and in New Hampshire. He grew up in Warren County, Iowa, just south of Des Moines, and lives in Columbus

9

@DanGearino dan.gearino@insideclimatenews.org

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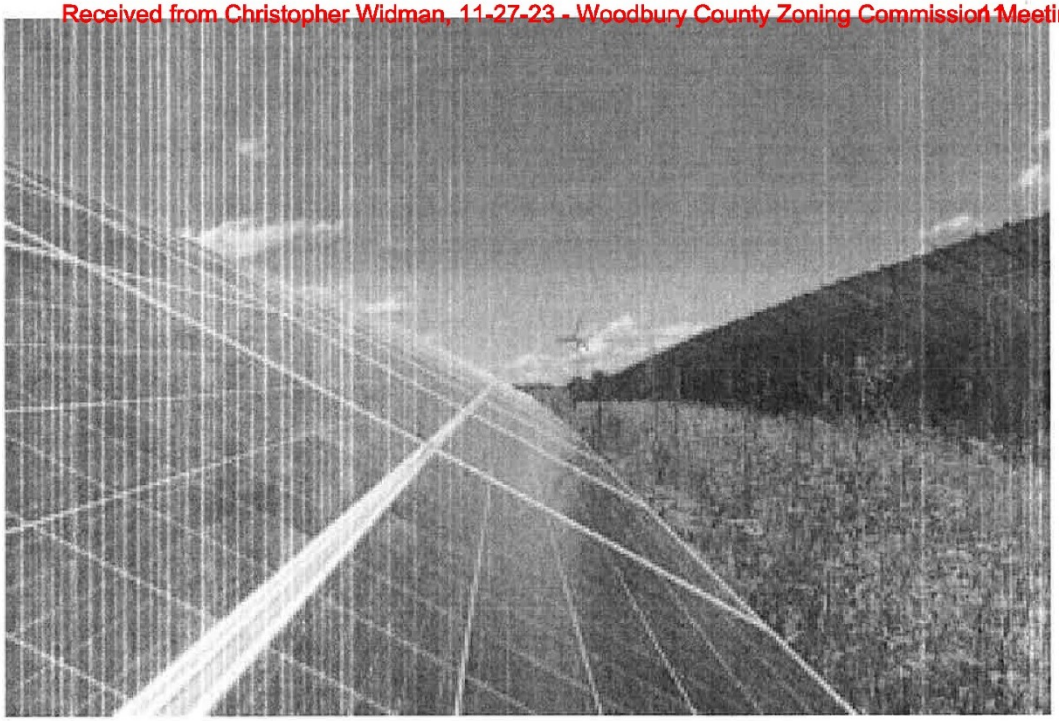

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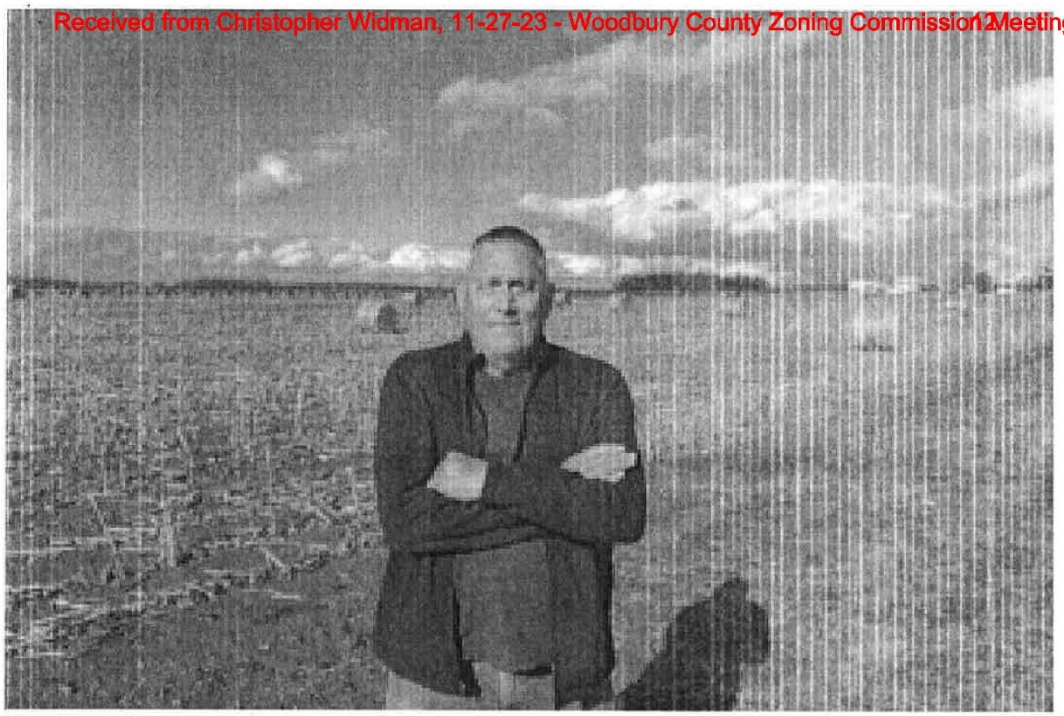
By Dan Gearino



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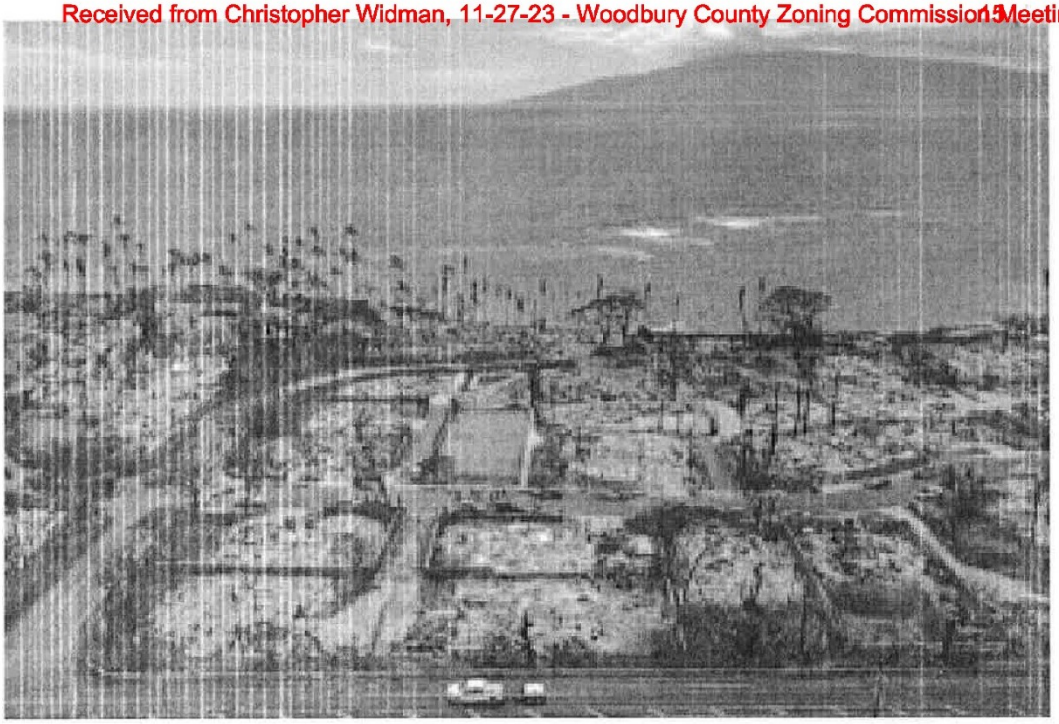
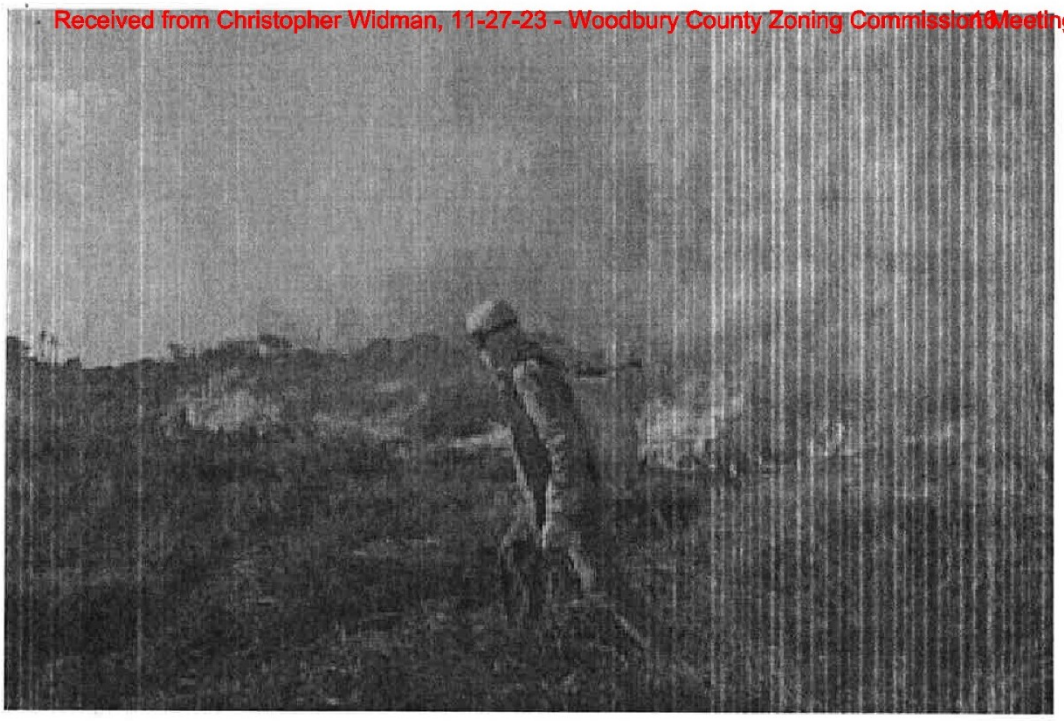


US Regions Will Suffer a Stunning Variety of Climate-Caused Disasters, Report Finds

By Nicholas Kusnetz, Lee Hedgepeth, Amy Green, Phil McKenna, Dylan Baddour, Aydali Campa, Wyatt Myskow, Marianne Lavelle and Kristoffer Tigue



New Research Makes it Harder to Kick The Climate Can Down the Road from COP28

By Bob Berwyn

Clean Energy

What Happened to the Great Lakes Offshore Wind Boom?

Offshore wind projects cropped up all over the Great Lakes region in the early 2010s. By the end of the decade, all but one were gone. Developers, though still drawn to the lakes' powerful winds, have been reluctant to return.

By Nicole Pollack

A New Solar Water Heating System Goes Online as Its Developer Enters the US Market

As New York Officials Push Clean Hydrogen Project, Indigenous Nation Sees a Threat to Its Land

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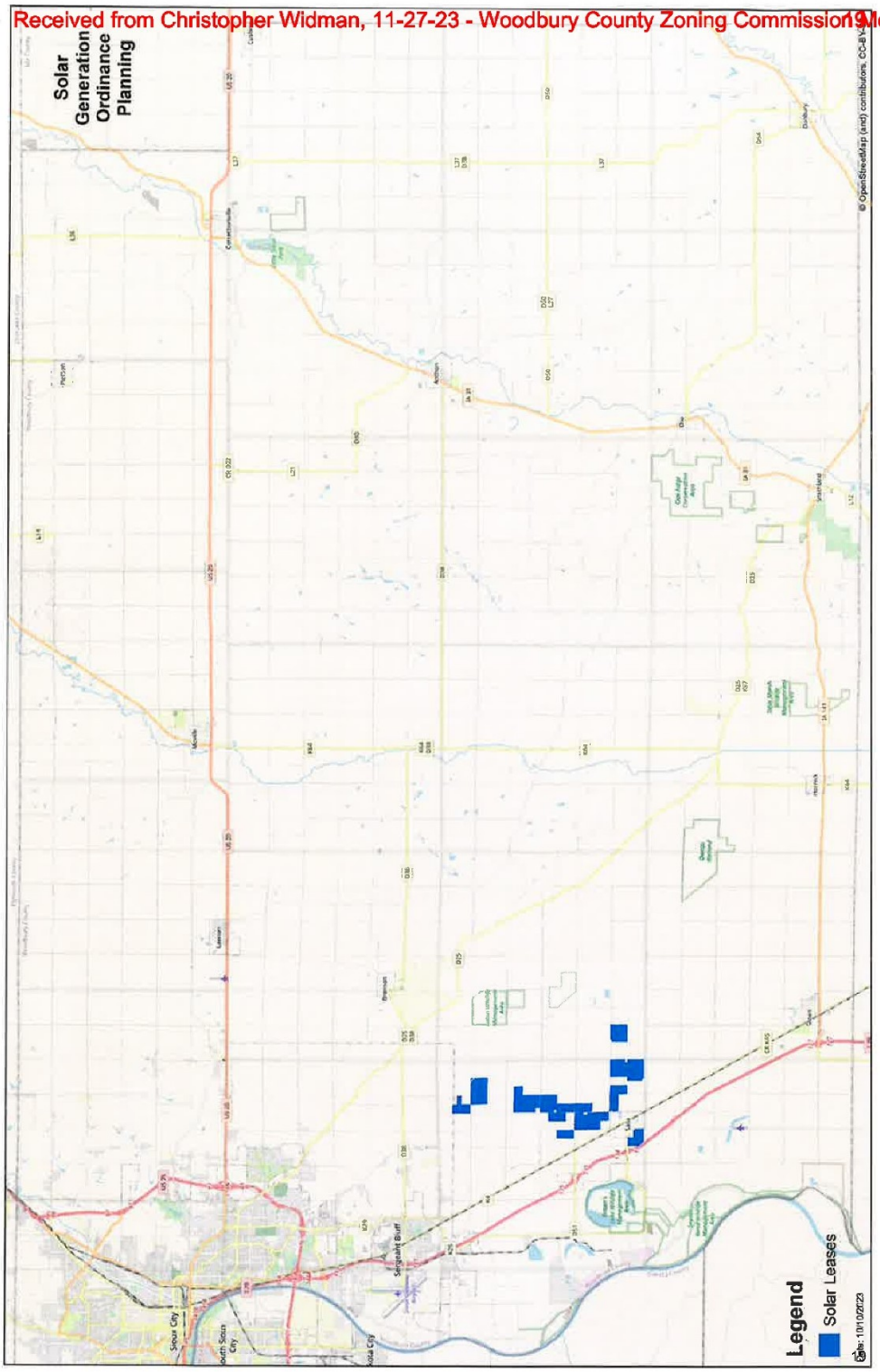

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	Leo Jochum	874702400001	19.5
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	Leo Jochum	874711200005	19.5
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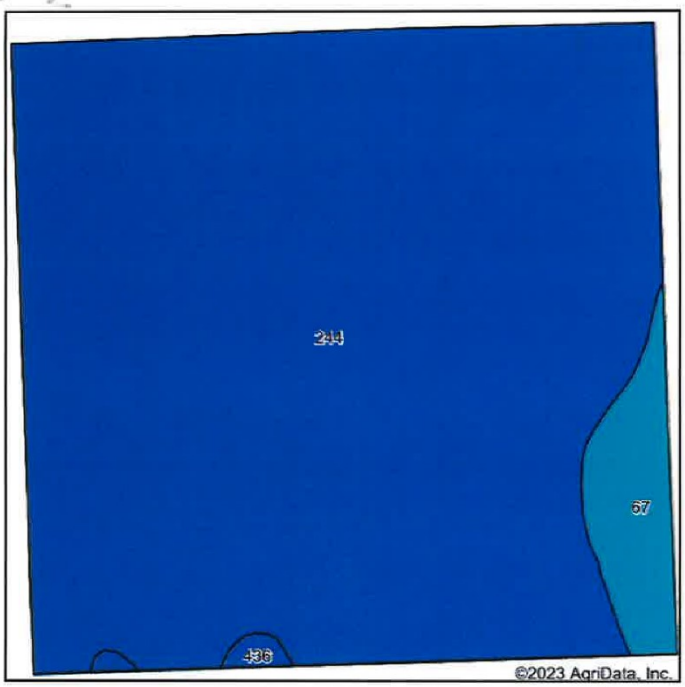
Soils Map



State: **Iowa**
County: **Woodbury**
Location: **5-86N-46W**
Township: **Sloan**
Acres: **153.5**
Date: **11/27/2023**

Maps Provided By: surety

Soils data provided by USDA and NRCS.

Area Symbol: IA193, Soil Area Version: 33								
Code	Soil Description	Acres	Percent of field	CSR2 Legend	Non-Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
244	Blend silty clay, 0 to 2 percent slopes, rarely flooded	144.57	94.2%		IIIw	81	47	52
67	Woodbury silty clay, 0 to 2 percent slopes, rarely flooded	8.00	5.2%		IIIw	74	51	52
436	Lakeport silty clay loam, 0 to 2 percent slopes, rarely flooded	0.93	0.6%		Iw	89	74	71
				Weighted Average	**2.99**	**80.7**	**47.4**	***n 52.1**

**IA has updated the CSR values for each county to CSR2.
*n: The aggregation method is "Weighted Average using all components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
Soils data provided by USDA and NRCS.

The CSR established an index rating soil map units (SMU) on their potential crop productivity. A CSR rating is based on the inherent properties of each SMU, average weather, and the frequency of use of the soil for row-crop production (Equation 1). The rating also assumes a SMU is adequately managed, artificially drained where required, SMUs located on lower landscapes are not frequently flooded, and there is no land leveling or terracing. Corn suitability ratings can range from 100 for SMUs that have no physical limitations for continuous row cropping to as low as 5 for SMUs with severe limitations for row cropping.

Equation 1

CSR = S - E - B ± W - C - D - SG - P - DSM - PM - MP (modified from Fenton et al., 1971)

S = slope
E = erosion
B = biosequence
W = wetness
C = calcareous soils
D = depth phase
SG = sandy or gravelly soils
P = precipitation factors
DSM = deposition and special soil modifiers
PM = parent material
MP = muck and peaty soils

Since the establishment of the CSR in 1971, the science for calculating CSR for a SMU became more robust as the knowledge base of soil properties was significantly enhanced and expanded. Another change since the establishment of the CSR in 1971 was the soil classification system in use at that time has since been replaced with the current classification system. With the change in soil classification systems, there are currently 500 soil series recognized in Iowa. That is 150 additional soils recognized than when the CSR was first established in 1971.

As the knowledge of soil's increased and more SMUs were recognized, the CSR calculation became more expert driven. In 2013, ISU introduced a new method for calculating CSR values called the Corn Suitability Rating 2 (CSR2) (Equation 2). The CSR2 method provided an index with ratings comparable to CSR, but was more consistent and transparent. This provided interested individuals the ability to calculate a CSR2 value from parameters that can be clearly understood and used.

Equation 2

CSR2 = S - M - W - F - D ± EJ (Burras et al., 2015)

S = taxonomic subgroup class of the series of the soil map unit (MU)
M = family particle size class
W = available water holding capacity (AWC) of the series
F = field condition of a particular MU
- Slope
- Flooding
- Ponding
- Erosion class
- Topsoil thickness

D = soil depth and tolerable rate of soil erosion
EJ = expert judgement correction factor
- Normally used with parent materials with very high bulk density and/or are usually clayey or sandy

Similar to the original CSR, the CSR2 assumes a SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

Soils Map

State: **Iowa**
County: **Woodbury**
Location: **31-87N-46W**
Township: **Grange**
Acres: **153.97**
Date: **11/27/2023**

Maps Provided By: surety

Soils data provided by USDA and NRCS.

Area Symbol: IA193, Soil Area Version: 33									
Code	Soil Description	Acres	Percent of field	CSR2 Legend	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
244	Blend silty clay, 0 to 2 percent slopes, rarely flooded	153.62	99.8%		IIIw		81	47	52
552	Owego silty clay, 0 to 2 percent slopes, rarely flooded	0.35	0.2%		IIIw	IIIw	67	42	51
				Weighted Average	**3.00**	*-	**81**	**47**	***n 52**

**IA has updated the CSR values for each county to CSR2.
*n: The aggregation method is "Weighted Average using all components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
*- Irr Class weighted average cannot be calculated on the current soils data due to missing data.
Soils data provided by USDA and NRCS.

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Equation 1

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S = slope
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W = wetness
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P = precipitation factors
DSM = deposition and special soil modifiers
PM = parent material
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Equation 2

CSR2 = S - M - W - F - D ± EJ (Burras et al., 2015)

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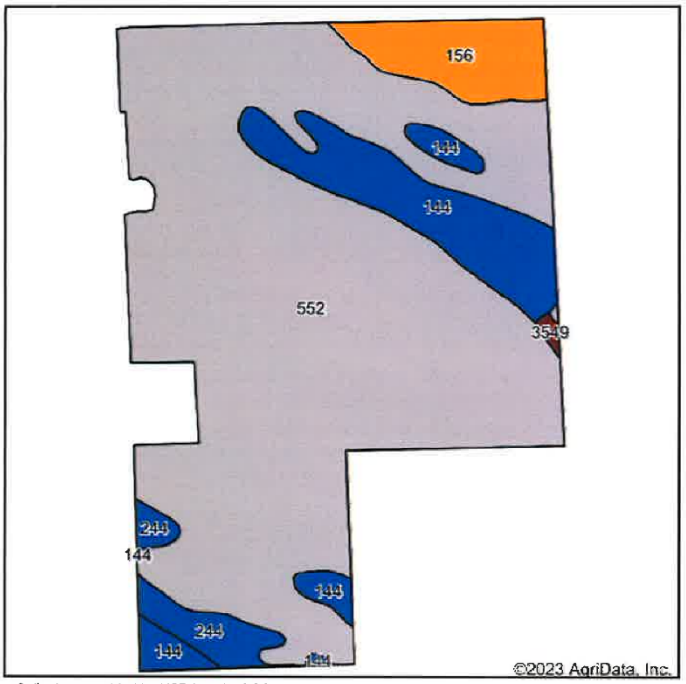
F = field condition of a particular MU
- Slope
- Flooding
- Ponding
- Erosion class
- Topsoil thickness

D = soil depth and tolerable rate of soil erosion
EJ = expert judgement correction factor
- Normally used with parent materials with very high bulk density and/or are usually clayey or sandy

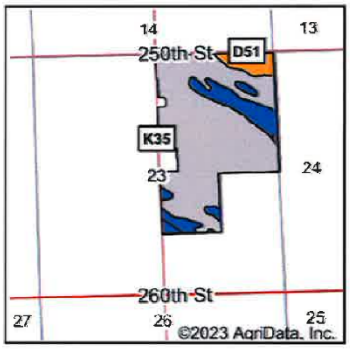
Similar to the original CSR, the CSR2 assumes a SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

Received from Leo Jochum, 11-27-23 - Woodbury County Zoning Commission Meeting 5

Soils Map



Soils data provided by USDA and NRCS.



State: **Iowa**
County: **Woodbury**
Location: **23-87N-47W**
Township: **Liberty**
Acres: **187.71**
Date: **11/27/2023**

Maps Provided By: surety
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N W E S

Area Symbol: IA193, Soil Area Version: 33

Code	Soil Description	Acres	Percent of field	CSR2 Legend	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
552	Owego silty clay, 0 to 2 percent slopes, rarely flooded	146.95	78.3%		IIIw	IIIw	67	42	51
144	Blake silty clay loam, 0 to 2 percent slopes, rarely flooded	23.10	12.3%		Iw	Iw	91	70	74
156	Albaton silty clay, 0 to 2 percent slopes, rarely flooded	11.21	6.0%		IIIw		58	51	49
244	Blend silty clay, 0 to 2 percent slopes, rarely flooded	5.99	3.2%		IIIw		81	47	52
3549	Modale complex, 0 to 2 percent slopes, rarely flooded	0.46	0.2%		Iw	Iw	77	63	57
				Weighted Average	**2.75**	***-**	**69.9**	**46.2**	***n 53.8**

**IA has updated the CSR values for each county to CSR2.
*n: The aggregation method is "Weighted Average using all components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
*- Irr Class weighted average cannot be calculated on the current soils data due to missing data.
Soils data provided by USDA and NRCS.

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- Erosion class
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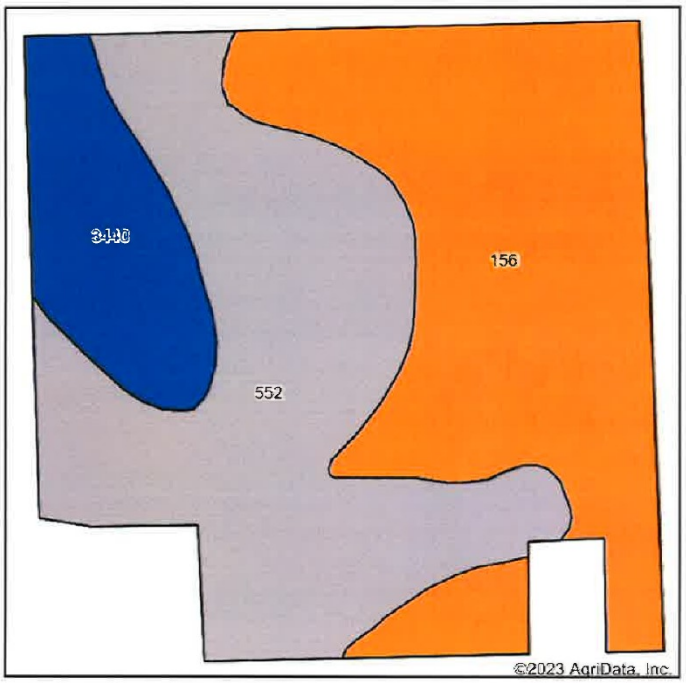
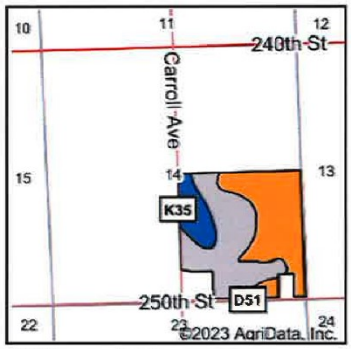
Soils Map



Soils data provided by USDA and NRCS.



State: **Iowa**
County: **Woodbury**
Location: **14-87N-47W**
Township: **Liberty**
Acres: **140.07**
Date: **11/27/2023**

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N W E S

Area Symbol: IA193, Soil Area Version: 33									
Code	Soil Description	Acres	Percent of field	CSR2 Legend	Non Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
156	Albaton silty clay, 0 to 2 percent slopes, rarely flooded	61.74	44.1%		IIIw		58	51	49
552	Owego silty clay, 0 to 2 percent slopes, rarely flooded	60.39	43.1%		IIIw	IIIw	67	42	51
3440	Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded	17.94	12.8%		IIw		84	63	55
				Weighted Average	**2.87**	***-**	**65.2**	**48.7**	***n 50.6**

**IA has updated the CSR values for each county to CSR2.
*n: The aggregation method is "Weighted Average using all components"
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D = depth phase	

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As the knowledge of soil's increased and more SMUs were recognized, the CSR calculation became more expert driven. In 2013, ISU introduced a new method for calculating CSR values called the Corn Suitability Rating 2 (CSR2) (Equation 2). The CSR2 method provided an index with ratings comparable to CSR, but was more consistent and transparent. This provided interested individuals the ability to calculate a CSR2 value from parameters that can be clearly understood and used.

Equation 2

CSR2 = S - M - W - F - D ± EJ (Burras et al., 2015)

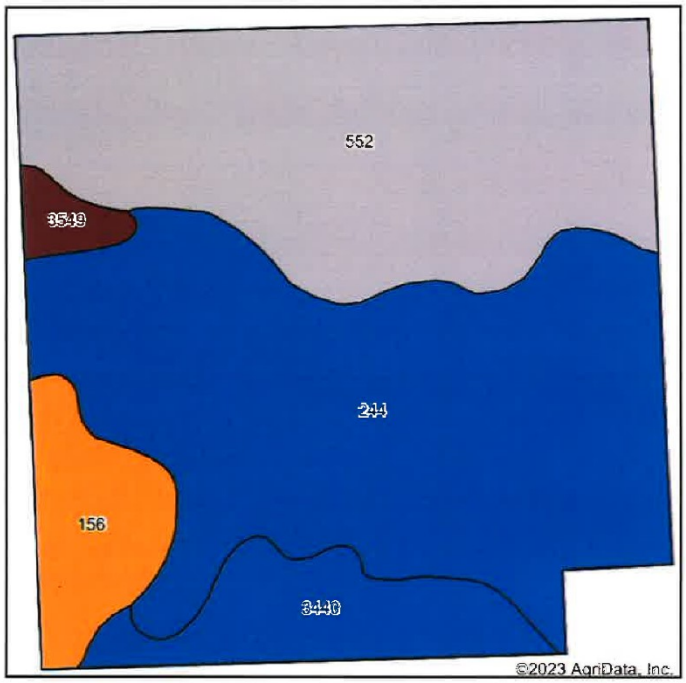
S = taxonomic subgroup class of the series of the soil map unit (MU)
M = family particle size class
W = available water holding capacity (AWC) of the series
F = field condition of a particular MU
- Slope
- Flooding
- Ponding
- Erosion class
- Topsoil thickness

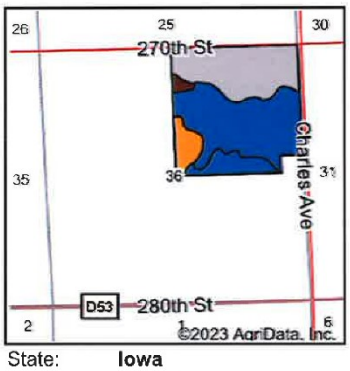
D = soil depth and tolerable rate of soil erosion
EJ = expert judgement correction factor
- Normally used with parent materials with very high bulk density and/or are usually clayey or sandy

Similar to the original CSR, the CSR2 assumes a SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

Received from Leo Jochum, 11-27-23 Woodbury County Zoning Commission Meeting

Soil Map





State: **Iowa**
County: **Woodbury**
Location: **36-87N-47W**
Township: **Liberty**
Acres: **152.17**
Date: **11/27/2023**

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING © AgriData, Inc. 2023 www.AgriDataInc.com

Soils data provided by USDA and NRCS.

Area Symbol: IA193, Soil Area Version: 33

Code	Soil Description	Acres	Percent of field	CSR2 Legend	Non-Irr Class *c	Irr Class *c	CSR2**	CSR	*n NCCPI Soybeans
244	Blend silty clay, 0 to 2 percent slopes, rarely flooded	71.47	47.0%		IIIw		81	47	52
552	Owego silty clay, 0 to 2 percent slopes, rarely flooded	54.10	35.6%		IIIw	IIIw	67	42	51
3440	Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded	13.35	8.8%		IIw		84	63	55
156	Albaton silty clay, 0 to 2 percent slopes, rarely flooded	10.72	7.0%		IIIw		58	51	49
3549	Modale complex, 0 to 2 percent slopes, rarely flooded	2.53	1.7%		Iw	Iw	77	63	57
				Weighted Average	2.88	*-	74.6	47.2	*n 51.8

**IA has updated the CSR values for each county to CSR2.
*n: The aggregation method is "Weighted Average using all components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
*- Irr Class weighted average cannot be calculated on the current soils data due to missing data.
Soils data provided by USDA and NRCS.

The CSR established an index rating soil map units (SMU) on their potential crop productivity. A CSR rating is based on the inherent properties of each SMU, average weather, and the frequency of use of the soil for row-crop production (Equation 1). The rating also assumes a SMU is adequately managed, artificially drained where required, SMUs located on lower landscapes are not frequently flooded, and there is no land leveling or terracing. Corn suitability ratings can range from 100 for SMUs that have no physical limitations for continuous row cropping to as low as 5 for SMUs with severe limitations for row cropping.

Equation 1

CSR = S - E - B ± W - C - D - SG - P - DSM - PM - MP (modified from Fenton et al., 1971)

S = slope
E = erosion
B = biosequence
W = wetness
C = calcareous soils
D = depth phase
SG = sandy or gravelly soils
P = precipitation factors
DSM = deposition and special soil modifiers
PM = parent material
MP = muck and peaty soils

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Equation 2

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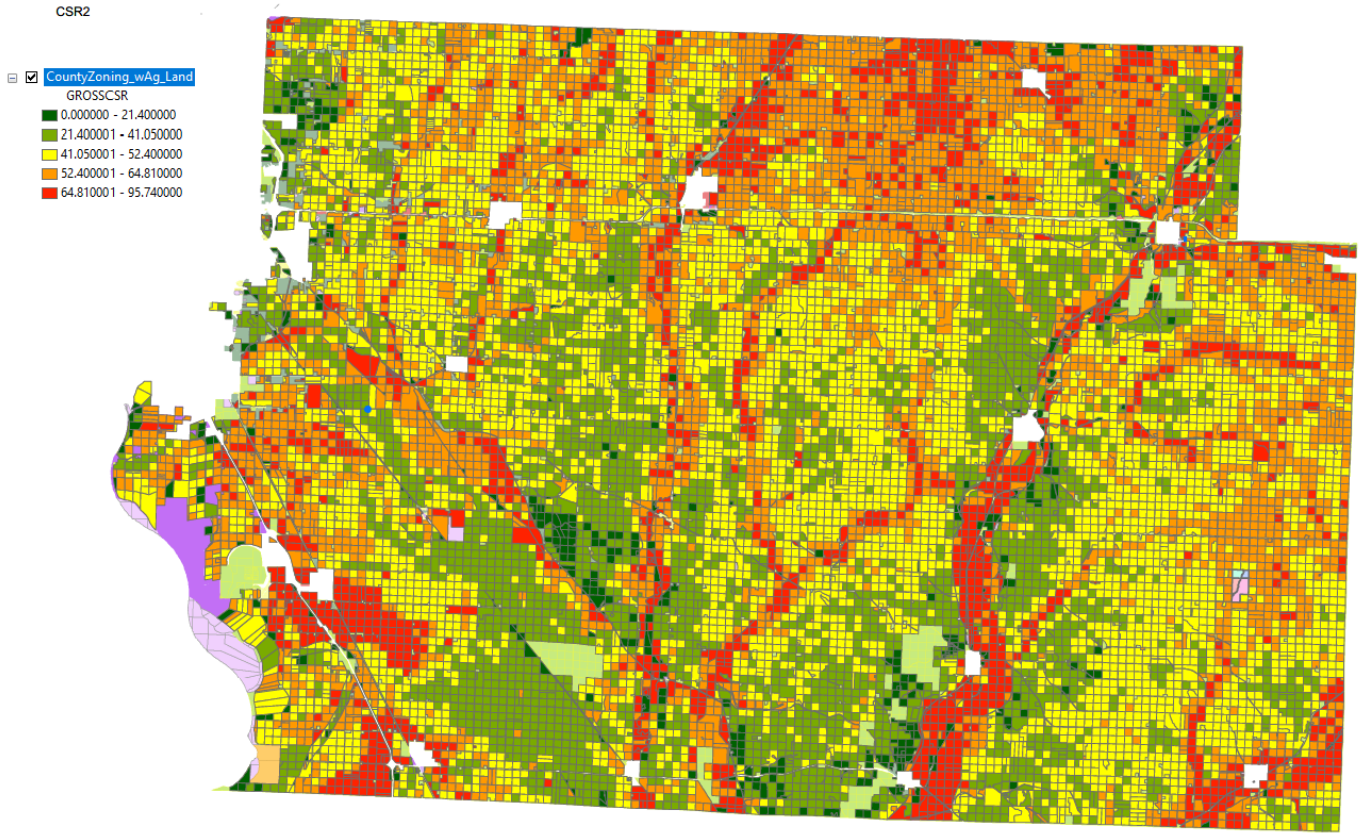
Similar to the original CSR, the CSR2 assumes a SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

Appendix

CSR2 average by parcel in Agricultural Preservation (AP) Zoning District

*Data acquired via Schneider/Beacon

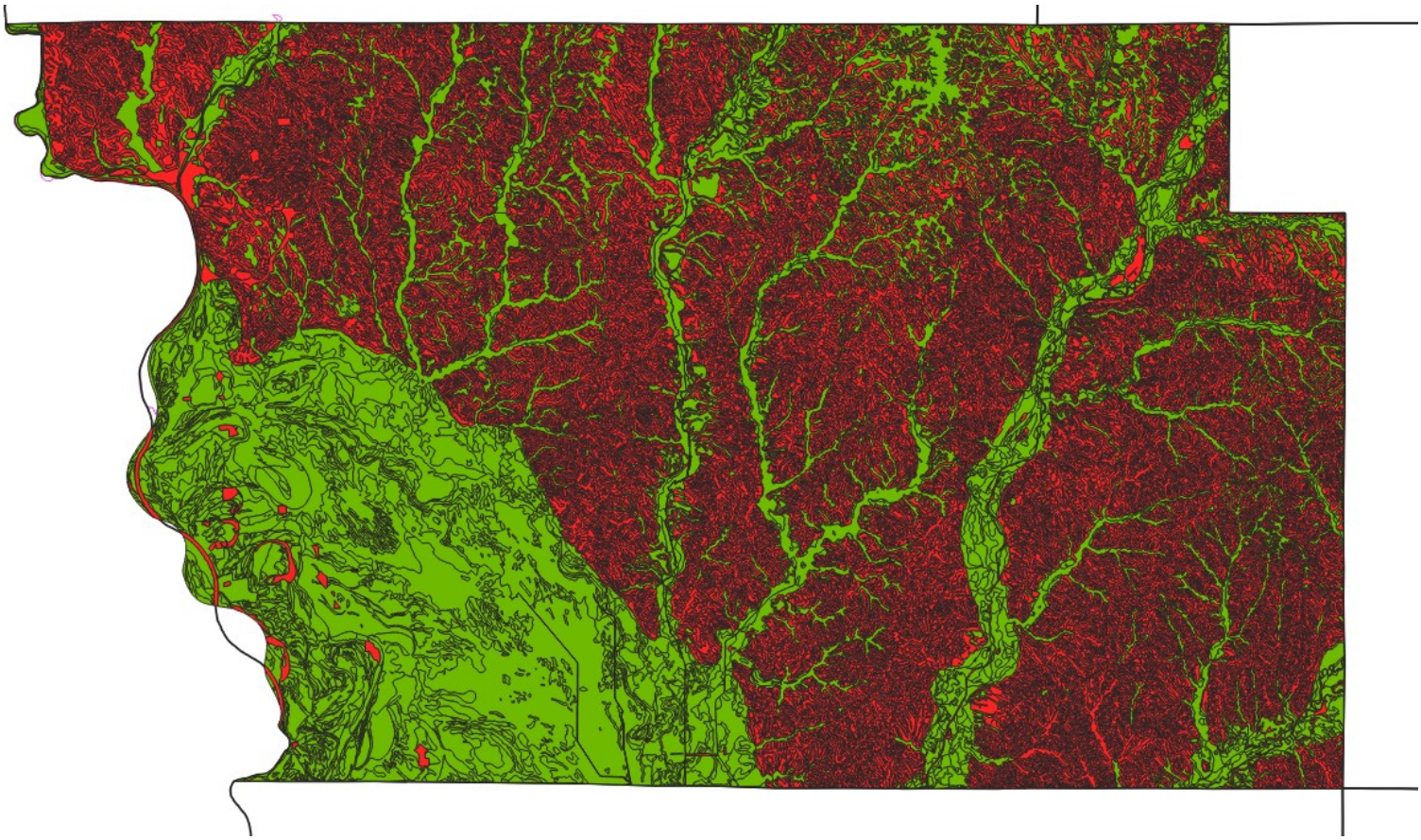
Using 65+ CSR2

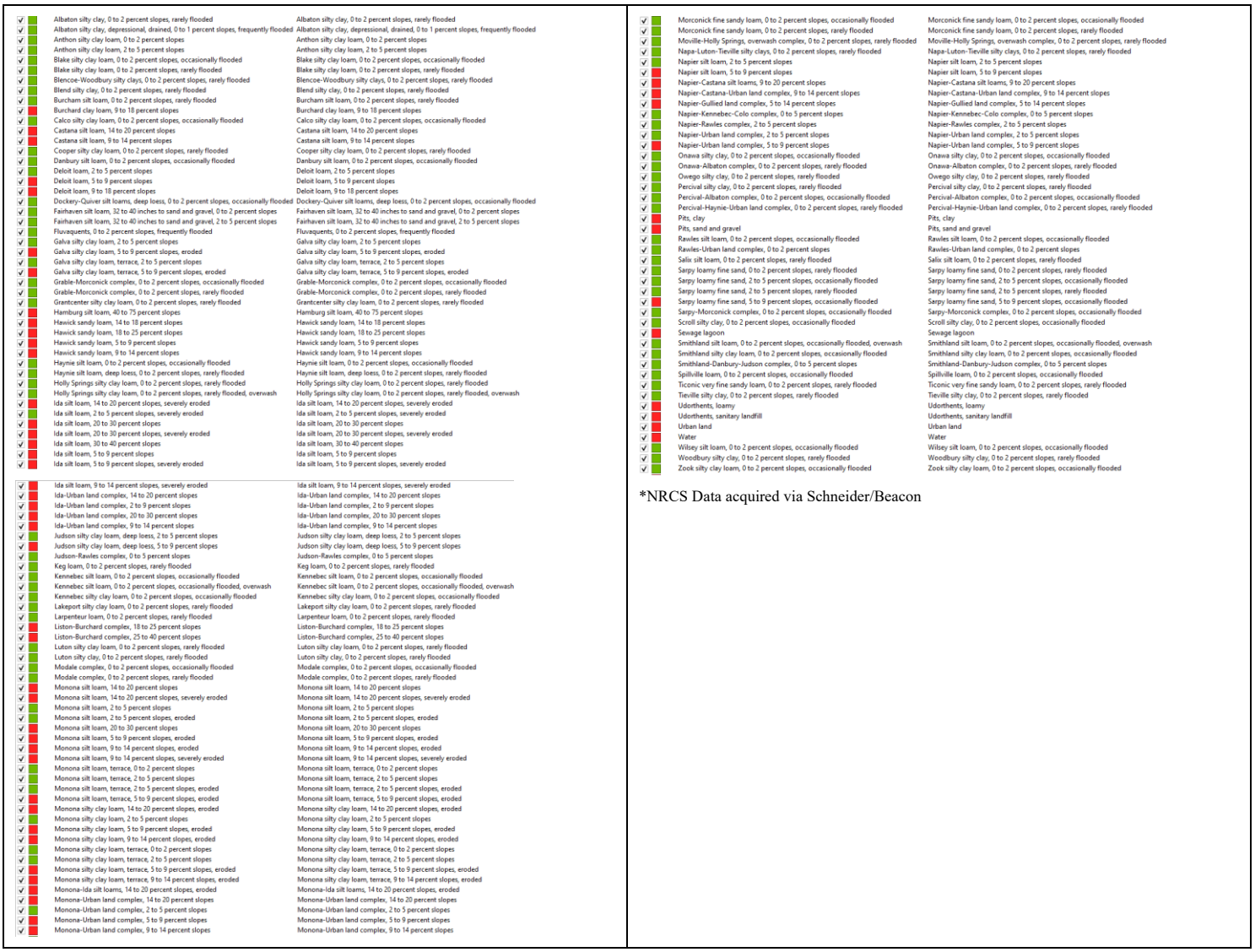


- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 65**
  - 204,405.91 Acres
- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 75**
  - 115,504.96 Acres

Soil types with slope content greater than 5% (Red)

*NRCS Data acquired via Schneider/Beacon



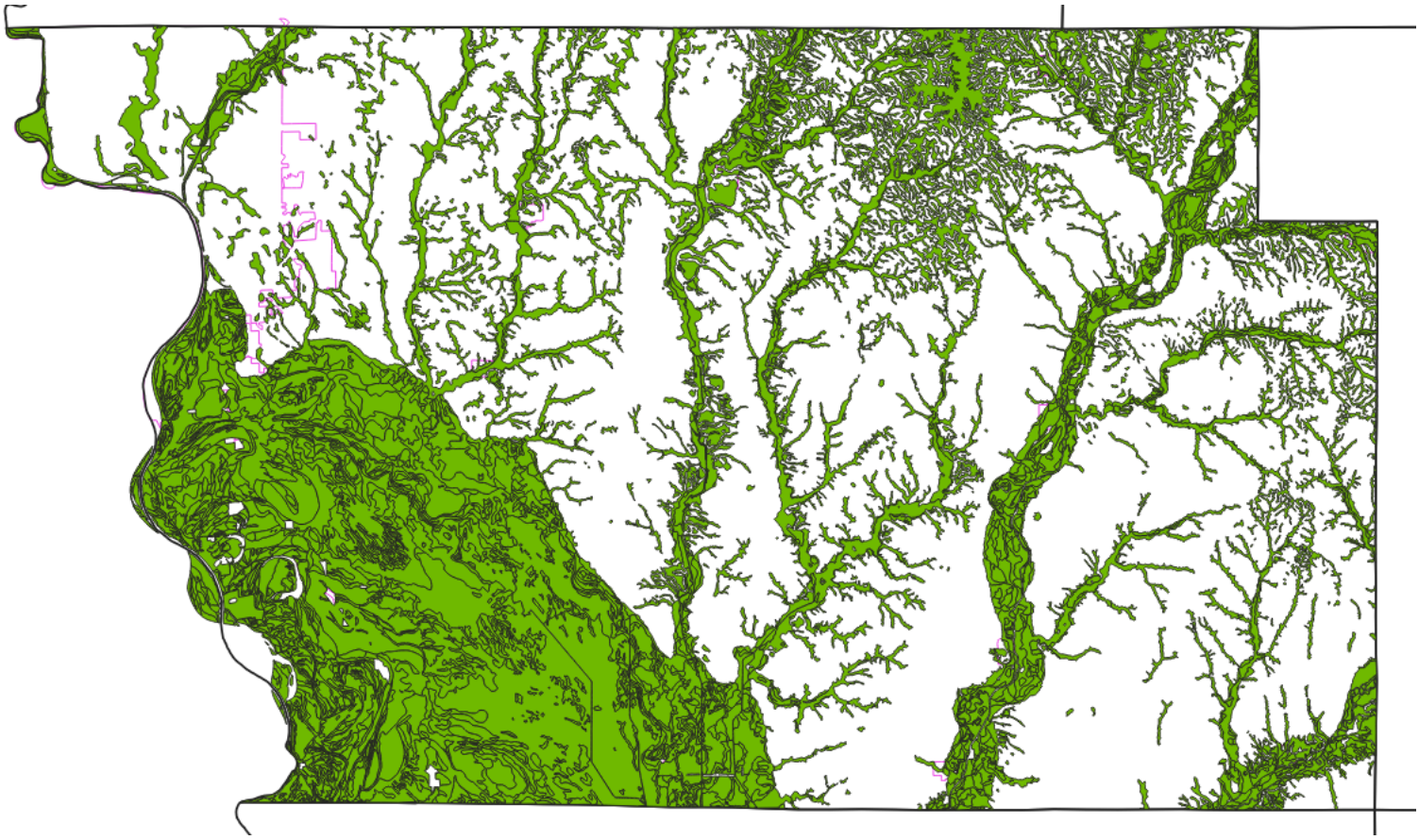


Albaton silty clay, 0 to 2 percent slopes, rarely flooded	Albaton silty clay, 0 to 2 percent slopes, rarely flooded
Albaton silty clay, depressional, drained, 0 to 1 percent slopes, frequently flooded	Albaton silty clay, depressional, drained, 0 to 1 percent slopes, frequently flooded
Anthon silty clay loam, 0 to 2 percent slopes	Anthon silty clay loam, 0 to 2 percent slopes
Anthon silty clay loam, 2 to 5 percent slopes	Anthon silty clay loam, 2 to 5 percent slopes
Blake silty clay loam, 0 to 2 percent slopes, occasionally flooded	Blake silty clay loam, 0 to 2 percent slopes, occasionally flooded
Blake silty clay loam, 0 to 2 percent slopes, rarely flooded	Blake silty clay loam, 0 to 2 percent slopes, rarely flooded
Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded	Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded
Blend silty clay, 0 to 2 percent slopes, rarely flooded	Blend silty clay, 0 to 2 percent slopes, rarely flooded
Burcham silt loam, 0 to 2 percent slopes, rarely flooded	Burcham silt loam, 0 to 2 percent slopes, rarely flooded
Burchard clay loam, 9 to 18 percent slopes	Burchard clay loam, 9 to 18 percent slopes
Calco silty clay loam, 0 to 2 percent slopes, occasionally flooded	Calco silty clay loam, 0 to 2 percent slopes, occasionally flooded
Castana silt loam, 14 to 20 percent slopes	Castana silt loam, 14 to 20 percent slopes
Castana silt loam, 9 to 14 percent slopes	Castana silt loam, 9 to 14 percent slopes
Cooper silty clay loam, 0 to 2 percent slopes, rarely flooded	Cooper silty clay loam, 0 to 2 percent slopes, rarely flooded
Danbury silt loam, 0 to 2 percent slopes, occasionally flooded	Danbury silt loam, 0 to 2 percent slopes, occasionally flooded
Deloit loam, 2 to 5 percent slopes	Deloit loam, 2 to 5 percent slopes
Deloit loam, 5 to 9 percent slopes	Deloit loam, 5 to 9 percent slopes
Deloit loam, 9 to 18 percent slopes	Deloit loam, 9 to 18 percent slopes
Dockery-Quiver silt loams, deep loess, 0 to 2 percent slopes, occasionally flooded	Dockery-Quiver silt loams, deep loess, 0 to 2 percent slopes, occasionally flooded
Fairhaven silt loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes	Fairhaven silt loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes
Fairhaven silt loam, 32 to 40 inches to sand and gravel, 2 to 5 percent slopes	Fairhaven silt loam, 32 to 40 inches to sand and gravel, 2 to 5 percent slopes
Fluvaquents, 0 to 2 percent slopes, frequently flooded	Fluvaquents, 0 to 2 percent slopes, frequently flooded
Galva silty clay loam, 2 to 5 percent slopes	Galva silty clay loam, 2 to 5 percent slopes
Galva silty clay loam, 5 to 9 percent slopes, eroded	Galva silty clay loam, 5 to 9 percent slopes, eroded
Galva silty clay loam, terrace, 2 to 5 percent slopes	Galva silty clay loam, terrace, 2 to 5 percent slopes
Galva silty clay loam, terrace, 5 to 9 percent slopes, eroded	Galva silty clay loam, terrace, 5 to 9 percent slopes, eroded
Grable-Morconick complex, 0 to 2 percent slopes, occasionally flooded	Grable-Morconick complex, 0 to 2 percent slopes, occasionally flooded
Grable-Morconick complex, 0 to 2 percent slopes, rarely flooded	Grable-Morconick complex, 0 to 2 percent slopes, rarely flooded
Grantcenter silty clay loam, 0 to 2 percent slopes, rarely flooded	Grantcenter silty clay loam, 0 to 2 percent slopes, rarely flooded
Hamburg silt loam, 40 to 75 percent slopes	Hamburg silt loam, 40 to 75 percent slopes
Hawick sandy loam, 14 to 18 percent slopes	Hawick sandy loam, 14 to 18 percent slopes
Hawick sandy loam, 18 to 25 percent slopes	Hawick sandy loam, 18 to 25 percent slopes
Hawick sandy loam, 5 to 9 percent slopes	Hawick sandy loam, 5 to 9 percent slopes
Hawick sandy loam, 9 to 14 percent slopes	Hawick sandy loam, 9 to 14 percent slopes
Haynie silt loam, 0 to 2 percent slopes, occasionally flooded	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded
Haynie silt loam, deep loess, 0 to 2 percent slopes, rarely flooded	Haynie silt loam, deep loess, 0 to 2 percent slopes, rarely flooded
Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded	Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded
Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded, overwash	Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded, overwash
Ida silt loam, 14 to 20 percent slopes, severely eroded	Ida silt loam, 14 to 20 percent slopes, severely eroded
Ida silt loam, 2 to 5 percent slopes, severely eroded	Ida silt loam, 2 to 5 percent slopes, severely eroded
Ida silt loam, 20 to 30 percent slopes	Ida silt loam, 20 to 30 percent slopes
Ida silt loam, 20 to 30 percent slopes, severely eroded	Ida silt loam, 20 to 30 percent slopes, severely eroded
Ida silt loam, 30 to 40 percent slopes	Ida silt loam, 30 to 40 percent slopes
Ida silt loam, 5 to 9 percent slopes	Ida silt loam, 5 to 9 percent slopes
Ida silt loam, 5 to 9 percent slopes, severely eroded	Ida silt loam, 5 to 9 percent slopes, severely eroded
Ida silt loam, 9 to 14 percent slopes, severely eroded	Ida silt loam, 9 to 14 percent slopes, severely eroded
Ida-Urban land complex, 14 to 20 percent slopes	Ida-Urban land complex, 14 to 20 percent slopes
Ida-Urban land complex, 2 to 9 percent slopes	Ida-Urban land complex, 2 to 9 percent slopes
Ida-Urban land complex, 20 to 30 percent slopes	Ida-Urban land complex, 20 to 30 percent slopes
Ida-Urban land complex, 9 to 14 percent slopes	Ida-Urban land complex, 9 to 14 percent slopes
Judson silty clay loam, deep loess, 2 to 5 percent slopes	Judson silty clay loam, deep loess, 2 to 5 percent slopes
Judson silty clay loam, deep loess, 5 to 9 percent slopes	Judson silty clay loam, deep loess, 5 to 9 percent slopes
Judson-Rawles complex, 0 to 5 percent slopes	Judson-Rawles complex, 0 to 5 percent slopes
Keg loam, 0 to 2 percent slopes, rarely flooded	Keg loam, 0 to 2 percent slopes, rarely flooded
Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded	Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded
Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded, overwash	Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded, overwash
Kennebec silty clay loam, 0 to 2 percent slopes, occasionally flooded	Kennebec silty clay loam, 0 to 2 percent slopes, occasionally flooded
Lakeport silty clay loam, 0 to 2 percent slopes, rarely flooded	Lakeport silty clay loam, 0 to 2 percent slopes, rarely flooded
Larpenteur loam, 0 to 2 percent slopes, rarely flooded	Larpenteur loam, 0 to 2 percent slopes, rarely flooded
Liston-Burchard complex, 18 to 25 percent slopes	Liston-Burchard complex, 18 to 25 percent slopes
Liston-Burchard complex, 25 to 40 percent slopes	Liston-Burchard complex, 25 to 40 percent slopes
Luton silty clay loam, 0 to 2 percent slopes, rarely flooded	Luton silty clay loam, 0 to 2 percent slopes, rarely flooded
Luton silty clay, 0 to 2 percent slopes, rarely flooded	Luton silty clay, 0 to 2 percent slopes, rarely flooded
Modale complex, 0 to 2 percent slopes, occasionally flooded	Modale complex, 0 to 2 percent slopes, occasionally flooded
Modale complex, 0 to 2 percent slopes, rarely flooded	Modale complex, 0 to 2 percent slopes, rarely flooded
Monona silt loam, 14 to 20 percent slopes	Monona silt loam, 14 to 20 percent slopes
Monona silt loam, 14 to 20 percent slopes, severely eroded	Monona silt loam, 14 to 20 percent slopes, severely eroded
Monona silt loam, 2 to 5 percent slopes	Monona silt loam, 2 to 5 percent slopes
Monona silt loam, 2 to 5 percent slopes, eroded	Monona silt loam, 2 to 5 percent slopes, eroded
Monona silt loam, 20 to 30 percent slopes	Monona silt loam, 20 to 30 percent slopes
Monona silt loam, 5 to 9 percent slopes, eroded	Monona silt loam, 5 to 9 percent slopes, eroded
Monona silt loam, 9 to 14 percent slopes, eroded	Monona silt loam, 9 to 14 percent slopes, eroded
Monona silt loam, 9 to 14 percent slopes, severely eroded	Monona silt loam, 9 to 14 percent slopes, severely eroded
Monona silt loam, terrace, 0 to 2 percent slopes	Monona silt loam, terrace, 0 to 2 percent slopes
Monona silt loam, terrace, 2 to 5 percent slopes	Monona silt loam, terrace, 2 to 5 percent slopes
Monona silt loam, terrace, 2 to 5 percent slopes, eroded	Monona silt loam, terrace, 2 to 5 percent slopes, eroded
Monona silt loam, terrace, 5 to 9 percent slopes, eroded	Monona silt loam, terrace, 5 to 9 percent slopes, eroded
Monona silty clay loam, 14 to 20 percent slopes, eroded	Monona silty clay loam, 14 to 20 percent slopes, eroded
Monona silty clay loam, 2 to 5 percent slopes	Monona silty clay loam, 2 to 5 percent slopes
Monona silty clay loam, 5 to 9 percent slopes, eroded	Monona silty clay loam, 5 to 9 percent slopes, eroded
Monona silty clay loam, 9 to 14 percent slopes, eroded	Monona silty clay loam, 9 to 14 percent slopes, eroded
Monona silty clay loam, terrace, 0 to 2 percent slopes	Monona silty clay loam, terrace, 0 to 2 percent slopes
Monona silty clay loam, terrace, 2 to 5 percent slopes	Monona silty clay loam, terrace, 2 to 5 percent slopes
Monona silty clay loam, terrace, 5 to 9 percent slopes, eroded	Monona silty clay loam, terrace, 5 to 9 percent slopes, eroded
Monona silty clay loam, terrace, 9 to 14 percent slopes, eroded	Monona silty clay loam, terrace, 9 to 14 percent slopes, eroded
Monona-Ida silt loams, 14 to 20 percent slopes, eroded	Monona-Ida silt loams, 14 to 20 percent slopes, eroded
Monona-Urban land complex, 14 to 20 percent slopes	Monona-Urban land complex, 14 to 20 percent slopes
Monona-Urban land complex, 2 to 5 percent slopes	Monona-Urban land complex, 2 to 5 percent slopes
Monona-Urban land complex, 5 to 9 percent slopes	Monona-Urban land complex, 5 to 9 percent slopes
Monona-Urban land complex, 9 to 14 percent slopes	Monona-Urban land complex, 9 to 14 percent slopes
Morconick fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Morconick fine sandy loam, 0 to 2 percent slopes, occasionally flooded
Morconick fine sandy loam, 0 to 2 percent slopes, rarely flooded	Morconick fine sandy loam, 0 to 2 percent slopes, rarely flooded
Moville-Holly Springs, overwash complex, 0 to 2 percent slopes, rarely flooded	Moville-Holly Springs, overwash complex, 0 to 2 percent slopes, rarely flooded
Napa-Luton-Tieville silty clays, 0 to 2 percent slopes, rarely flooded	Napa-Luton-Tieville silty clays, 0 to 2 percent slopes, rarely flooded
Napier silt loam, 2 to 5 percent slopes	Napier silt loam, 2 to 5 percent slopes
Napier silt loam, 5 to 9 percent slopes	Napier silt loam, 5 to 9 percent slopes
Napier-Castana silt loams, 9 to 20 percent slopes	Napier-Castana silt loams, 9 to 20 percent slopes
Napier-Castana-Urban land complex, 9 to 14 percent slopes	Napier-Castana-Urban land complex, 9 to 14 percent slopes
Napier-Gullied land complex, 5 to 14 percent slopes	Napier-Gullied land complex, 5 to 14 percent slopes
Napier-Kennebec-Colo complex, 0 to 5 percent slopes	Napier-Kennebec-Colo complex, 0 to 5 percent slopes
Napier-Rawles complex, 2 to 5 percent slopes	Napier-Rawles complex, 2 to 5 percent slopes
Napier-Urban land complex, 2 to 5 percent slopes	Napier-Urban land complex, 2 to 5 percent slopes
Napier-Urban land complex, 5 to 9 percent slopes	Napier-Urban land complex, 5 to 9 percent slopes
Onawa silty clay, 0 to 2 percent slopes, occasionally flooded	Onawa silty clay, 0 to 2 percent slopes, occasionally flooded
Onawa-Albaton complex, 0 to 2 percent slopes, rarely flooded	Onawa-Albaton complex, 0 to 2 percent slopes, rarely flooded
Owego silty clay, 0 to 2 percent slopes, rarely flooded	Owego silty clay, 0 to 2 percent slopes, rarely flooded
Percival silty clay, 0 to 2 percent slopes, rarely flooded	Percival silty clay, 0 to 2 percent slopes, rarely flooded
Percival-Albaton complex, 0 to 2 percent slopes, occasionally flooded	Percival-Albaton complex, 0 to 2 percent slopes, occasionally flooded
Percival-Haynie-Urban land complex, 0 to 2 percent slopes, rarely flooded	Percival-Haynie-Urban land complex, 0 to 2 percent slopes, rarely flooded
Pits, clay	Pits, clay
Pits, sand and gravel	Pits, sand and gravel
Rawles silt loam, 0 to 2 percent slopes, occasionally flooded	Rawles silt loam, 0 to 2 percent slopes, occasionally flooded
Rawles-Urban land complex, 0 to 2 percent slopes	Rawles-Urban land complex, 0 to 2 percent slopes
Salix silt loam, 0 to 2 percent slopes, rarely flooded	Salix silt loam, 0 to 2 percent slopes, rarely flooded
Sarpy loamy fine sand, 0 to 2 percent slopes, rarely flooded	Sarpy loamy fine sand, 0 to 2 percent slopes, rarely flooded
Sarpy loamy fine sand, 2 to 5 percent slopes, occasionally flooded	Sarpy loamy fine sand, 2 to 5 percent slopes, occasionally flooded
Sarpy loamy fine sand, 2 to 5 percent slopes, rarely flooded	Sarpy loamy fine sand, 2 to 5 percent slopes, rarely flooded
Sarpy loamy fine sand, 5 to 9 percent slopes, occasionally flooded	Sarpy loamy fine sand, 5 to 9 percent slopes, occasionally flooded
Sarpy-Morconick complex, 0 to 2 percent slopes, occasionally flooded	Sarpy-Morconick complex, 0 to 2 percent slopes, occasionally flooded
Scroll silty clay, 0 to 2 percent slopes, occasionally flooded	Scroll silty clay, 0 to 2 percent slopes, occasionally flooded
Sewage lagoon	Sewage lagoon
Smithland silt loam, 0 to 2 percent slopes, occasionally flooded, overwash	Smithland silt loam, 0 to 2 percent slopes, occasionally flooded, overwash
Smithland silty clay loam, 0 to 2 percent slopes, occasionally flooded	Smithland silty clay loam, 0 to 2 percent slopes, occasionally flooded
Smithland-Danbury-Judson complex, 0 to 5 percent slopes	Smithland-Danbury-Judson complex, 0 to 5 percent slopes
Spillville loam, 0 to 2 percent slopes, occasionally flooded	Spillville loam, 0 to 2 percent slopes, occasionally flooded
Ticonic very fine sandy loam, 0 to 2 percent slopes, rarely flooded	Ticonic very fine sandy loam, 0 to 2 percent slopes, rarely flooded
Tieville silty clay, 0 to 2 percent slopes, rarely flooded	Tieville silty clay, 0 to 2 percent slopes, rarely flooded
Udorthents, loamy	Udorthents, loamy
Udorthents, sanitary landfill	Udorthents, sanitary landfill
Urban land	Urban land
Water	Water
Wiley silt loam, 0 to 2 percent slopes, occasionally flooded	Wiley silt loam, 0 to 2 percent slopes, occasionally flooded
Woodbury silty clay, 0 to 2 percent slopes, rarely flooded	Woodbury silty clay, 0 to 2 percent slopes, rarely flooded
Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded	Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded

*NRCS Data acquired via Schneider/Beacon

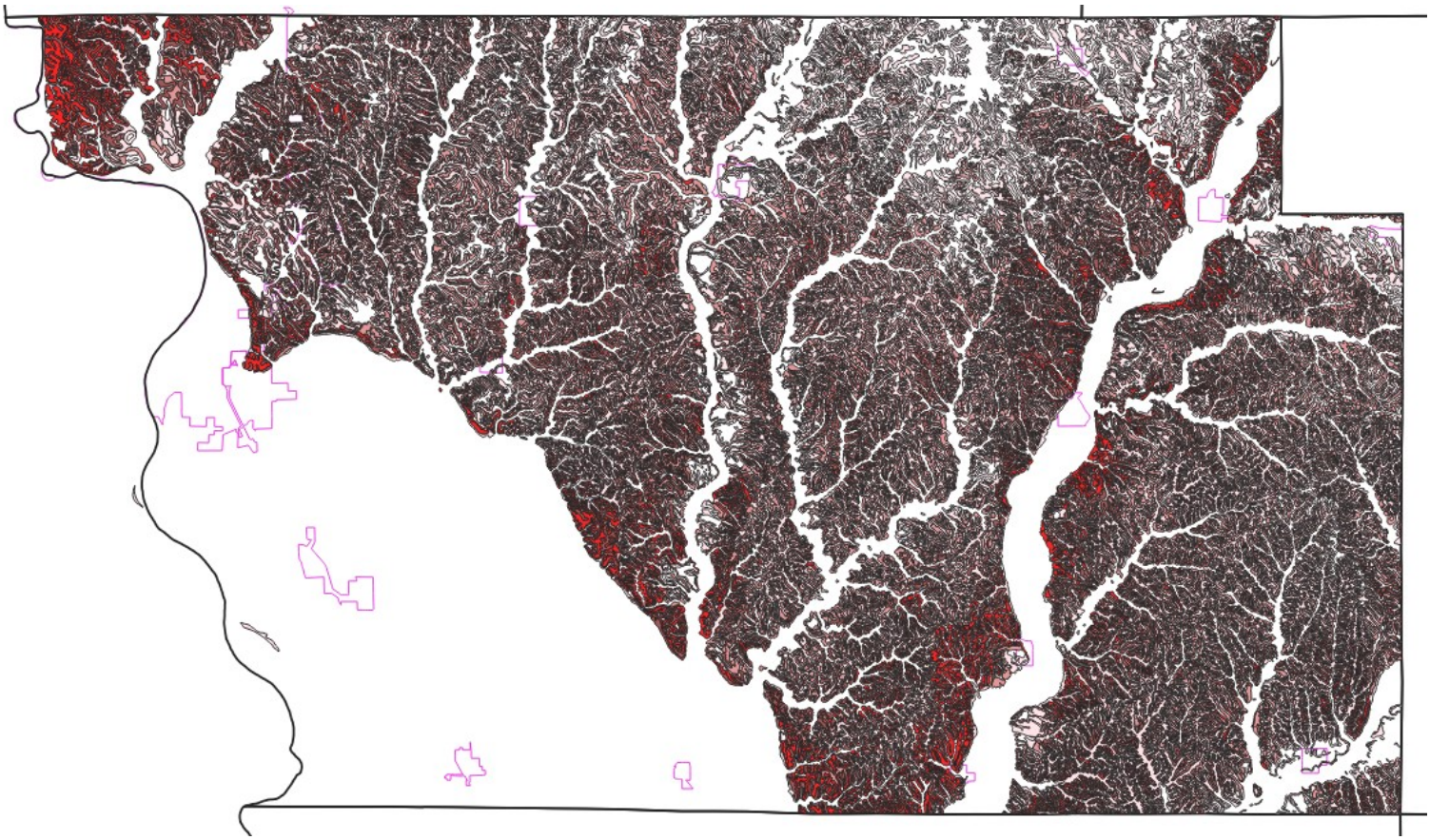
Areas with soil slope content between 0-5%

*NRCS Data acquired via Schneider/Beacon



Areas with soil slope content greater than 5%

*NRCS Data acquired via Schneider/Beacon



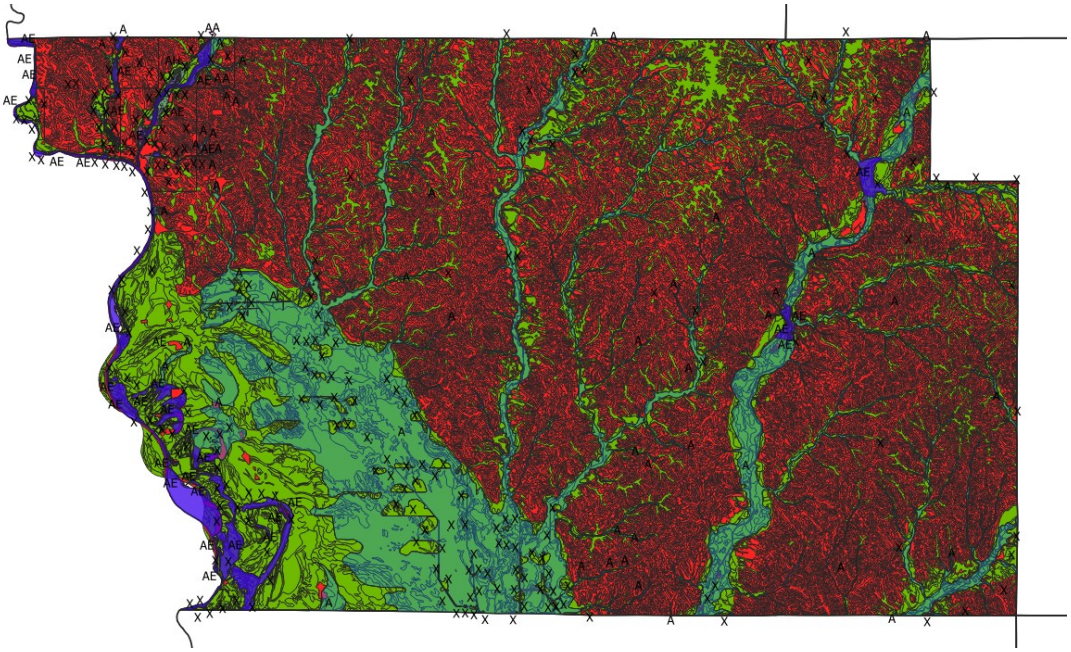
Floodplain and soils with slope content over 5%

*NRCS data and floodplain Data acquired via Schneider/Beacon

Blue Represents Floodplain Areas

Red represents areas with Slope over 5%

Green represents areas with Slope under 5%



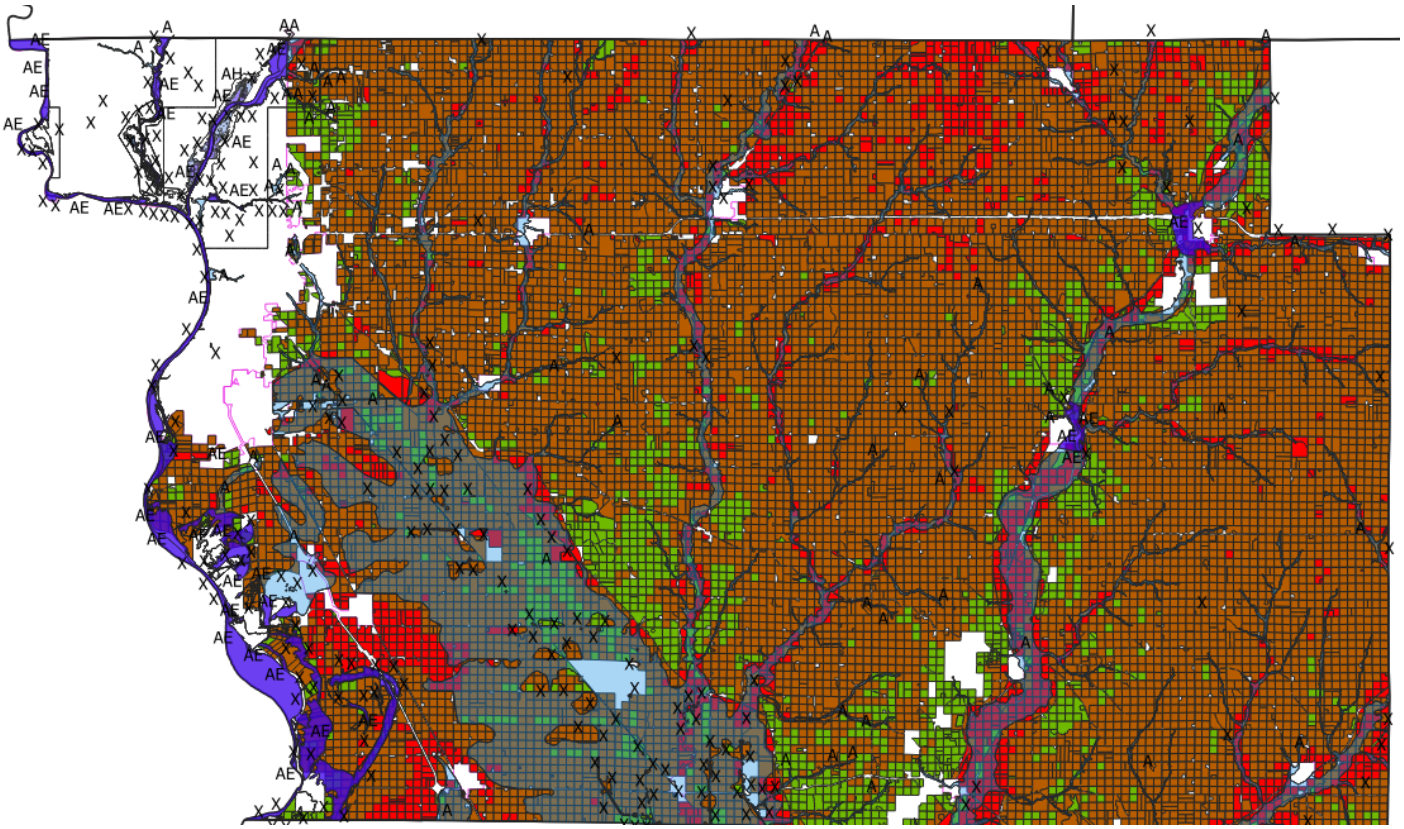
Floodplain and CSR2

*NRCS data and floodplain Data acquired via Schneider/Beacon

Floodplain – “Blue”

CSR2 –

0-35– “Green”
0-3635-64– “Brown”
0-3765-100 = “Red”



Stakeholder Positions

The Woodbury County Conservation Board voted at their December 14, 2023 meeting to recommend one-mile setbacks or separation distances from conservation areas as per page 5 in the minutes provided on the subsequent pages.

WOODBURY COUNTY, IOWA, CONSERVATION BOARD
MINUTES OF THE THURSDAY, DECEMBER 14, 2023, BOARD MEETING

The following is a true copy of the minutes of the meeting of the Woodbury County, Iowa, Conservation Board held on Thursday, December 14, 2023, at the Dorothy Pecaut Nature Center beginning at 4:00 p.m.

BOARD MEMBERS PRESENT
Aaron Gehling, Chris Zellmer-Zant, Cindy Bennett, Neil Stockfleth, and Tom Limoges

BOARD MEMBERS ABSENT
None

STAFF PRESENT
Dan Heissel, Brian Stehr, and Dawn Bostwick

OTHERS PRESENT
Mark Nelson, County Supervisor/Conservation Board Liaison
Dolf Ivener, Two Hawks LLC

CALL TO ORDER
Vice Chairperson Bennett called the meeting to order at 4:07 p.m.

CORRESPONDENCE ITEMS
None

PUBLIC PARTICIPATION
None

ITEM R1. Approve Consent Agenda

MOTION by Neil, second by Tom.

To approve the consent agenda.

VOTE:
Aye: Aaron Gehling, Cindy Bennett, Neil Stockfleth & Tom Limoges
Nay: None
Absent: Chris Zellmer-Zant

The consent agenda was approved and involved the following items:

C1. Approve Minutes of the October 19, 2023, Regular Meeting and November 11, 2023, Special Meeting

C2. Approve the October 2023 and November 2023 Claims and Expenditures

C3. Receive and Place on File the October 2023 and November 2023 Financial/Budget Reports

C4. Acceptance of Gifts/Donations:
- $7,000 from Rosie Kuehne for Playscape
- $1,128 from Siouxland Community Foundation for Playscape (via WCCF/Big Give)
- $500 from Gary & Anne Shaner for Playscape (via WCCF/Big Give)
- $600 from Lawrence & Juliann Delperdang for bird seed and animal care

- $200 Jason Wolfe for food & care of raptors
- $100 from Sandra Nation for Playscape
- $100 from Gary LeMoine for Tale Trail books
- Seashell collection from Teresa Dibble-Eichmann
- Nature Calls decorations from Pam Pfautsch
- Childrens' Big Books from Dan & Dolly Varner
- Nerf guns & darts from Gary LeMoine

(Chris Zellmer-Zant arrived at 4:08 p.m. and assumed chairperson duties.)

ITEM R2. Dolf Ivener – Solar Information

Dolf Ivener of Two Hawks LLC was present to discuss a possible solar project at Little Sioux Park. He and his partner started the solar project at Snyder Bend in 2020. Snyder Bend was chosen at that time because it was the easiest and had the most expensive electricity. Two Hawks owns the system at Snyder Bend and has a power purchase agreement with the conservation board. Dolf noted that in last four years the price of solar panels has been greatly reduced and there is now a 50% tax credit available. He would like to put a 300KW system in at Little Sioux Park to power the whole park. He asked for board approval to pursue this with MidAmerican. If they agree, he will bring information to the board for a decision. The board agreed by consensus to allow Dolf to approach MidAmerican and report back.

ITEM R3. Little Sioux Park Sewer Project Bids – Accept and Award Bids

Dan reported that the bid opening and public hearing for the Little Sioux Park sewer project was held on Tuesday, December 12th. Three contractors submitted bids and were present. Noah with JEO opened the bids and confirmed that they were complete. The project was split into three groups: A) Build the sanitary sewer service collection system, B) Install wastewater treatment system, and C) Build lateral field and associated force main. Doyle Construction of Fort Dodge, IA, had the low bid for Group A and Steve Harris Construction of Homer, NE, had the low bids for Groups B & C.

MOTION by Neil, second by Cindy.

To approve the plan specifications and forms of contract prepared by JEO for the Little Sioux Park site and utility improvements.[23-30]

VOTE:
Aye: Aaron Gehling, Chris Zellmer-Zant, Cindy Bennett, Neil Stockfleth & Tom Limoges
Nay: None
Absent: None

MOTION by Aaron, second by Tom.

To accept the bids as presented by Bainbridge Construction, Doyle Construction and Steve Harris Construction for the Little Sioux Park – Riverside Campground site and utility improvements project and award low bid of $267,005 for Group A to Doyle Construction of Fort Dodge, IA, and award low bid of $568,683.60 for Group B and $99,335.00 for Group C to Steve Harris Construction of Homer, NE. These will be contingent upon successful reference checks by JEO.[23-31]

[23-30] To approve the plan specifications and forms of contract prepared by JEO for the Little Sioux Park site and utility improvements.

[23-31] To accept the bids as presented by Bainbridge Construction, Doyle Construction and Steve Harris Construction for the Little Sioux Park – Riverside Campground site and utility improvements project and award low bid of $267,005 for Group A to Doyle Construction of Fort Dodge, IA, and award low bid of $568,683.60 for Group B and $99,335.00 for Group C to Steve Harris Construction of Homer, NE. These will be contingent upon successful reference checks by JEO.

VOTE:
Aye: Aaron Gehling, Chris Zellmer-Zant, Cindy Bennett, Neil Stockfleth & Tom Limoges
Nay: None
Absent: None

Dan reported that the DNR has done a site inspection and approved the system as planned. The permit should go through quickly, but work cannot start until the permit is in hand. Dan has requested to start on the collection system right away since it isn't part of the actual treatment system as the contractor wants to start in two weeks or less. The collection system work is required to be done by May 15th to avoid any disruption of the camping season.

ITEM R4. Budget Review – Supervisors' Letter – Changes

Dan presented an updated budget explanation sheet. He explained that the Board of Supervisors originally called for a 0% budget increase for FY25 but ended up allowing up to a 2% increase. The conservation department budget that was originally approved had an increase of 3.7%. Dan reduced the budget from $16,300 to $10,300. He will send an explanation letter along with the budget worksheet to the Supervisors.

MOTION by Neil, second by Tom.

To approve the amended FY25 budget as presented.[23-32]

VOTE:
Aye: Aaron Gehling, Chris Zellmer-Zant, Cindy Bennett, Neil Stockfleth & Tom Limoges
Nay: None
Absent: None

ITEM R5. Capital Improvement Projects Update

1. Nature Center Foundation & Retaining Walls

Dan updated the board on the nature center foundation project. Radar was completed on all floors upstairs and downstairs. There was a large area with voids in the classrooms, staff entrance, naturalist work room, and kitchen. That information has been sent to building services, the architect, and the engineers to make a recommendation. They will fill the voids with foam but won't jack the floors. They don't believe that the foundation has settled, but they are still monitoring the building to make sure it isn't continuing to move. The Supervisors have allocated $120,000 for the project.

Dan reported that the contractor looked at the garden retaining walls last month. The contractor said he would pour concrete walls to match the wall by the shelter and step it down 2'. He won't be able to do curved walls. The garden will be two tiers instead of three. A 15-20' strip will be left between the retaining wall and the light pole to allow for equipment access if necessary. This project might be started this spring.

Dan also had the contractor look at the area by the gravel parking lot in case erosion starts and was told they could tie the existing shelter wall in behind the parking area.

[23-32] To approve the amended FY25 budget as presented.

2. Little Sioux Park – Bellamy Campground

Dan stated that the contract with JEO included both Riverside and Bellamy campgrounds. Staff has been working on redesigning the Bellamy campground layout. The software used to collect the data has not been working well with the GIS program used to manipulate the data, specifically on field maps. Tyler has been on the phone with support trying to figure it out. GPS points were obtained to within a couple inches, and it has been laid out in the campground. The layout has been sent to JEO, and they are working to get plans and specs completed for Bellamy. The funds aren't available to complete the project right now, but the plans will be ready to go.

Dan reported that Little Sioux staff has already been putting fish structures in the south end of the pit. The three field staff members had to take an online miner training to be allowed access in the active pit due to MSHA rules.

3. Little Sioux Park Beach Discussion

Dan stated that Little Sioux Park has taken a hit in camping revenues due to the beach being closed, and water levels aren't expected to turn around anytime soon. He discussed the possibility of drilling a 250' well with Ben Kusler at the engineer's office and was told that it would need to be continually pumped. The well would cost $20,000, and an additional $20-30,000 would be needed for a pump and the electricity to run it.

Ben Kusler recommended grading the beach so there is a zero-grade entry with low water and a zero-grade entry with high water. Dan will talk to Mark Nahra and see if his staff can survey it this winter and find where the drops are. Ben offered to design it on his own time because he is retiring this month. If it looks like it will work, he will make a recommendation.

ITEM R6. Board Member/Staff Reports

1. Administrative Items

Dan reported on the following items:

a. January Meeting Date and Location

The next meeting will be held at 4:00 p.m. on January 11, 2024, at the Dorothy Pecaut Nature Center. Long-term planning for Southwood Conservation Area might be done at that time, and a meeting will be scheduled at that park first next summer.

b. Vests for Officers

Dan reported that a WCCB officer was recently on the scene of an active shooter incident, and it reinforced the need for rifle vests which Dan has been trying to get for the department for three years. Brian has asked two companies for quotes and has only received a quote from GH Armor so far at a cost of $9,800 to equip all eight officers with vests and ballistic helmets. He recently learned that the other company he contacted is being investigated by the DOJ because their armor is not meeting specs.

Discussion was held regarding possible grants. Dan stated that he tried for grants for this during his first three years here. Tom suggested applying for a $10,000 micro grant through MRHD and agreed to contract them about it.

(Chris left at 5:35 p.m. and Cindy assumed chairperson duties.)

MOTION by Aaron, second by Neil.

To pursue grants to purchase rifle vests for eight officers.[23-33]

VOTE:
Aye: Aaron Gehling, Cindy Bennett, Neil Stockfleth & Tom Limoges
Nay: None
Absent: Chris Zellmer-Zant

(Tom left at 5:37 p.m.)

c. Solar Farm Distance From Conservation Areas

Dan stated that he was contacted by Dan Priestly regarding solar panel setbacks for conservation areas, and he recommended a one-mile setback.

MOTION by Neil, second by Aaron.

To support the adoption of a one-mile setback from conservation areas for solar arrays in the proposed county zoning rules.[23-34]

VOTE:
Aye: Aaron Gehling, Cindy Bennett, & Neil Stockfleth
Nay: None
Absent: Chris Zellmer-Zant & Tom Limoges

d. Old Business

Midway Park Fishing Jetty: Dan reported that Brian's fish habitat stamp grant request for the Midway Park fishing jetty scored third at the review with an award of approximately $80,000. However, later the head of the scoring committee called and said that one of the scores was entered incorrectly which bumped Woodbury down to fourth with an award of $65,000. Dan requested a copy of the score sheets, and it looks like an 8 turned into a 9 on both Woodbury and Ida counties. The scorer was contacted, and they gave 8 to Woodbury and 9 to Ida. Dan is going to call them on it.

O'Connell Property: Dan was contacted by the Iowa Natural Heritage Foundation about another offer from Erik O'Connell on his 116-acre property. He is now offering appraised value, but it would cost $2,000-$3,000 for the appraisal. Dan stated that the property has been timbered and overgrazed and does not attach to any current WCCB property. He added that the landscape has changed with available grants, county budget, and money available. It was agreed by board consensus to pass on it again.

2. Nature Center Activities

The nature center programs and visitors reports for October and November were presented. Theresa was unable to attend the meeting, but board members were referred to her printed report.

[23-33] To pursue grants to purchase rifle vests for eight officers.
[23-34] To support the adoption of a one-mile setback from conservation areas for solar arrays in the proposed county zoning rules.

3. Park Activities

Brian reported on the following park activities:

- Little Sioux staff worked with Bedrock Gravel to truck unwanted overburden to the lakeside campground area that was cleared earlier this year, and it ended up being enough to finish up the project. The area will now be frost seeded or seeded in the spring.
- A local eagle scout recently made 20 fish structures and, with the help of staff, placed the structures in the north pit of Midway Park.
- Southwood staff completed a burn on the Salsness and Zook properties.
- Southwood staff spent several days clearing and replacing half of the Fowler Forest fence near the dam.
- Brown's Lake and Snyder Bend staff have placed large rocks around the parking areas to replace the posts.
- Little Sioux staff moved rock to make a parking lot at Peters Pit.
- Liam Bell has been working with Northland CDL Training and Licensing to complete his CDL training. Most was done online, but he will travel to Mason City next Monday and Wednesday for driving training and testing. This was a considerable savings compared to doing it through WIT.
- Both F150 trucks have been ordered from Barry Motor with a spring delivery expected. Nothing has been heard about the Chevy 1-ton except that the build date was pushed from October to January.
- Dan reported that the insurance check for the totaled truck was written to the conservation board. The money is required to be deposited back into the fund that the truck was paid from and won't be allocated to the conservation budget line. Dan sent an email to Dennis Butler stating that he will be amending the conservation budget for that amount in the spring, and the balance due for the replacement truck will come from the conservation department budget.
- Brian has been looking for a trailer to replace two 1998 models at the end of their life span. There is $17,000 remaining in the budget which should be enough to cover it.

4. Board Information

Aaron asked if any WCCB staff are able to adjust the valve at Brown's Lake. Brian stated that staff have been shown how to do it, but they do not have a key. Only state employees are allowed to adjust it.

5. Other Business

None

ITEM R7. Director's Annual Review

The board went into closed session for the Director's annual performance evaluation at 6:21 p.m. by motion from Aaron and second by Neil. Vice Chairperson Bennett held the roll call vote: Aaron Gehling-Aye, Neil Stockfleth-Aye, Cindy Bennett-Aye, Chris Zellmer-Zant-Absent and Tom Limoges-Absent.

The board discussed Director Heissel's performance for the past year and goals for the future. The session was recorded.

At 6:46 p.m., Aaron moved to come out of closed session, which was seconded by Neil and carried unanimously by roll call vote: Aaron Gehling-Aye, Neil Stockfleth-Aye, Cindy Bennett-Aye, Chris Zellmer-Zant-Absent and Tom Limoges-Absent.

ITEM R8. Adjournment

The meeting was adjourned at 6:48 p.m.

The above minutes were recorded by Dawn Bostwick.

Recording Secretary, Dawn Bostwick

Board Secretary, Tom Limoges

Board Chair, Chris Zellmer-Zant

Public Comments and Documentation Submissions Since November 30, 2023

Daniel Priestley

From: Leo Jochum <leojochum@gmail.com>
Sent: Tuesday, January 9, 2024 9:53 AM
To: Daniel Priestley
Subject: comments for Jan 17 study session
Attachments: Impacting Farm Values.docx; Solar's Impact on Rural Property Values 1.pdf

Dan and Planning and Zonning:,
Please include this material in the packet for the study session.
Thank you, Leo

Renewable energy in Iowa is the main reason that Iowa consumers have a utility monthly rate of $116.32 versus a national average of $147.64 which is a savings of about $370 per year for every Iowa household according to independent research.
According to the US Energy Information Administration Overview, Iowa ranks among the top five states in per capita total energy consumption and out of those five it is the only non crude oil producing state.
However in Renewable Energy, Iowa is the top ethanol producing state providing about one fourth of the nation's ethanol. Woodbury County is the third largest county in Iowa with approximately 570,000 acres of farmland raising 195,000 acres of corn but does not have an ethanol plant. One can only assume a large amount of Woodbury's corn production goes to ethanol plants in Ida, Plymouth, Cherokee in Iowa and Dakota Co,Ne. In addition to that how much distillers grain comes back to Woodbury for supplements to cattle and hog feed.
At the beginning of the ethanol era a Woodbury Co farmer tried to organize a group of individuals to invest in an ethanol plant but could not generate enough interest. As a result Woodbury Co now sends a sizable amount of bushels of corn out of the county.
In 2022 nearly two thirds of Iowa's electricity came from renewable resources, almost all of it from wind, second in the nation to Texas.
Wind energy powers 62% of Iowa's net generation, the highest of any state.
Significant economic benefits of the wind industry include payments to landowners, short and long term jobs creation and spending on goods and services in supporting industries.
Woodbury Co opted for a more restrictive ordinance based on concerns with safety issues in the event of a tower collapse or blade failure, the disruptive "whoosh" sound of the turbine blade rotation and the nighttime aviation lights constantly blinking in the neighboring houses. While the wind ordinance does not eliminate a wind project it appears that Mid America has paused their wind turbine project.
However Woodbury County residents still receive the benefit of lower electric rates made possible by wind energy in Iowa.
With the electric power plants utilizing coal being in existence for 50 plus years there is environmental pressure to shut down some of these generating plants.
According to the U.S. Energy Information Administration, Port Neal 1&2 started in 1964 and 1972 with a combined generating capacity of 496.2 MW and both were retired in 2016. Unit 3 started operating in 1975 with 584.1 MW capacity.

Comments and documentation received from Leo Jochum, 1/9/24

The grid infrastructure that supported the combined production of 1080.3 MW is still in existence today creating a significant opportunity for a Utility Solar Project North and East of Salix.
Independent researchers have found that solar is very clean, non polluting and eco friendly.
The World Health Organization and a number of Universities across the nation have found through research that solar is non toxic and does not create health problems. The sound emitted is less than 50 decibels during the day and almost zero after sunset.
At the September 26, 2023 Woodbury Co Board of Supervisors meeting an agenda item was introduced to give direction to Planning and Zoning for further consideration during public hearings regarding Utility Scale Solar which stated:
" Upon public hearing comments and further reflection, we offer an alternative to be considered that might be preferable, namely the expansion of "Light Industrial." We would ask that landowners who so desire such utility scale solar be rezoned to this, presently constituting only 101 acres of Woodbury Counties 570,000 acres. Landowners could continue to farm the land but open up an avenue that would be far preferable than Agricultural Preservation and much more appropriate."
In addition it was recommended that the 5% slope would be in effect only for fixed arrays.
It was also recommended to change the 2% cap on total acres to a 1% cap every four years allowing approximately 5700 acres every four years which would present an opportunity to revisit the policy every four years.
During the Supervisors discussion Mr. Priestly introduced some information about how a Renewable Energy Overlay might apply for a Utility Solar Project. The Overlay concept was very well received as the main objective was to keep the land in the AP Zone so it can revert back to agricultural production when the lease reaches maturity.
Utility Solar will have a financial benefit to the county in the form of electrical generating tax which is more than five times the annual ag real estate rate. This is a direct benefit for all the residents of Woodbury County as it helps hold down all real estate tax.
Another economic boost comes during the construction phase when there can be upwards of 200 employees for two years in the construction phase.

After the solar project is in operation there will also be full time employment positions available and possible service contracts for maintenance and repairs. And in most cases non typical new businesses create new businesses.
And lastly but just as important the lease payments to the landlords can be reinvested in the local businesses and community. It might be putting up an irrigation pivot, building a machine shed or buying a piece of farm equipment.
But we have also heard concerns from people that are concerned that just a few people are receiving the money from this project and they will use it to take advantage of their neighbors and squeeze out the people that are not as fortunate. This is far from the truth. There are twelve different families involved in this project and all of them are involved in agriculture. There is not any absentee landowners out of state in this project. It is all local people committed to making our community a safe and healthy environment.
Renewable Energy is at the forefront of large businesses looking to expand or relocate at the local and national level and Woodbury County has an excellent opportunity to attract major companies to the General Industrial area in Southbridge when the new interchange becomes a reality.
How did Woodbury County miss the opportunity for an ethanol plant while our four neighboring counties each built one?

Comments and documentation received from Leo Jochum, 1/9/24

I understand the pause on the wind energy with the concerns on safety and health and maybe this is where Utility Solar can fill in the gap.
Prior to 1990 most solar panels had an efficiency rating of around 14%. Now the efficiency of Utility Solar is at 25% thanks to the private company research of Boeing, Panasonic and Sharp. At the present time efficiency values as high as 44.4% have been achieved in laboratory settings. It's only a matter of time before it will be applied in the real world.
Woodbury County has a unique opportunity to attract new businesses and to encourage Renewable Energy at the same time. Utility Solar is non polluting, non toxic, low profile and does not obstruct neighboring businesses. It will be utilizing the infrastructure that is already in place in addition to creating a safe haven for small wildlife.
The concern that people have about protecting our farmland will be met by implementing the Renewable Energy Overlay Zone. This will protect the acres in the General Industrial Area to be used for its intended purpose and the local community, county, Sioux City and surrounding area will benefit.

Comments and documentation received from Leo Jochum, 1/9/24

Source: https://www.farmprogress.com/commentary/how-solar-is-impacting-farmland-values#

PrairieFarmer

How solar is impacting farmland values

Land Values: We can learn what might happen in Illinois by studying what's happening out East, where solar development is several steps ahead.

The **Illinois Society of Farm Managers and Rural Appraisers** does not have a formal position on solar development. Members will tell you there is always concern when productive soil is lost, but at the same time, many would argue that landowners should have the freedom to do what they want with their land, within reason. Loosely fettered land ownership is one of the fundamental rights that makes this nation great.

You may ask, if all these solar farms are going to be built, how will that affect my farm's values?

Lessons from the East

Last month, the American Society of Farm Managers and Rural Appraisers hosted a webinar, "Solar's Impacts on Rural Property Values." ASFMRA member-appraisers Rich Kirkland from North Carolina and Don Fisher from New York shared their experiences appraising property near solar developments. Their markets are further along in the development of solar energy than we are here in Illinois.

In these types of projects, appraisers look for factors that increase external obsolescence. External obsolescence is described as a form of depreciation caused by factors not on the property itself, such as economic, social or environmental.

Both appraisers discussed different categories where external obsolescence occurs. The ones considered among the more negligible for solar are potential hazardous materials in the panels, odor, noise and traffic. U.S. EPA has done substantial studies on solar projects, and its findings are that the developments bring little impact on the local environment. Once built, the developments are largely static and produce little to no odor, noise or traffic.

Comments and documentation received from Leo Jochum, 1/9/24

Other concerns the appraisers spent more time looking at were stigma and undesirable viewshed or diminished views from the property. Often when a development is initiated, neighboring landowners who may like solar projects in general find they don't like them next to their property. In the industry, these protesters are described as NIMBY: Not In My Back Yard.

Land values

Kirkland and Fisher found that when appraisers were surveyed in areas where solar projects have gone in, the difference in the range of valuation ran from down 25% to up 10% when compared to properties not within the immediate area of the project. When that survey was further filtered and separated by those appraisers who actually conducted appraisals for properties near solar developments, they found that the appraisers who did not appraise nearby came in with lower anticipated valuations when compared to the appraisers who actually did a nearby appraisal. That indicates that the expectation of lower valuations did not hold true when properties actually sold.

And how about the view? Kirkland and Fisher's studies indicated that when there were adequate setback requirements and vegetation planted to block the views, impact on local land values was negligible to positive.

So, if Illinois values follow the trends we see in areas of the nation with more solar development, we may lament the loss of productive ground — but we can be assured that the value of our own farms nearby should not be affected.

Solar's Impact on Rural Property Values

By ASFMRA Press posted 02-15-2021 10:23 PM

0 RECOMMEND

The difference that experience makes when it comes to the perceived and actual impacts of solar on nearby property values.

In recent years, public ly surrounding solar farms has gained the attention of property owners and appraisers. As with any large-scale development, the change represented by utility scale solar can be cause for concern. Naysayers express worries involving impacts to viewshed, drainage problems, the idea of replacing productive agricultural lands with an industrial use, and more. Much of this worry comes back to one thing: the potential impact on property values.

A recently completed study from the University of Rhode Island looked at 400,000 transactions in New England over the course of 15 years, finding that suburban residential property values suffered negative impacts when nearby solar farms replaced resources perceived as scarce, such as green space. On the other hand, this same study found no associated impact on property values for solar farms located in rural areas.

Meanwhile, a survey by the University of Texas at Austin asked 37 appraisers a series of questions about property value impacts based upon proximity to utility-scale solar projects. On average, the surveyed appraisers believed that there was a negative relationship between solar farms and nearby property values, though the appraisers with strong negative opinions also answered "No" when asked whether they had prior experience assessing property located near large solar installations. Dr. Varun Rai, who led the study, stated that the results "suggest that experience assessing near a solar installation is associated with a much less negative estimate of impact." He also noted that "the median and mode of all estimates of impact was zero, suggesting negative estimates from a few respondents were pulling down the mean."

Patricia McGarr, who serves as the National Director of CohnReznick Advisory's Valuation Practice, has conducted a number of property value impact studies involving solar, and spoke on the subject at the ASFMRA Illinois Chapter's Annual Meeting in 2019. McGarr's studies found no consistent negative impact on residential property value that could be attributed to nearby solar farms. She also asserted that township and county assessors have tremendous amounts of data that point in the same direction.

McGarr referenced the 1,000-acre "North Star" solar project located in Chisago County, Minnesota. There, the county assessor found no adverse impact on nearby property values, noting, "It seems conclusive valuation hasn't suffered."

McGarr has attended many public hearings on proposed solar developments and listened to residents taking issue with the idea of putting good farm land out of production and potential impacts to viewsheds and drainage tiles. "Owners of transitional ag lands, or lands that are in the path of development, are concerned about any changes that could have future impacts on sale values," she explained.

But McGarr believes solar developers are addressing these issues. It's now common practice for developers to include vegetative screening as a visual buffer between solar farms and adjacent properties to account for aesthetic concerns. In regards to drainage, developers are "conducting drainage tile studies and being vigilant [...] so that they don't reroute the drainage."

"Solar is an interim use," McGarr added. "There are no contaminants and the land sits fallow, allowing the soil quality to improve. It's not like you're paving things over."

Donald Fisher, ARA, served six years as Chair of the ASFMRA's National Appraisal Review Committee and 19 years as Chair of the Editorial Committee. Donald is the Executive Vice President of CNY Pomeroy Appraisers, and has done several market studies examining the impact of solar on surrounding residential values.

"Most of the locations were in either suburban or rural areas, and all of those studies found either a neutral impact or, ironically, a positive impact, where values on properties after the installation of solar farms went up higher than time trends," he explained.

According to Fisher, solar development has begun to compete with rural residential development and Concentrated Animal Feeding Operation (CAFO) farmers seeking new acreage. "In certain markets," he said, "the solar developers are paying as much as rural residential developers and CAFO farmers."

Howard Halderman, AFM, President and CEO of Halderman Real Estate and Farm Management, attended a recent solar talk hosted by the Indiana Chapter of the ASFMRA. Halderman's takeaway was that properties immediately adjacent to a solar farm may see a negative impact, but tactics to hide the solar farm from view could help offset those effects.

Halderman believes that other rural properties would likely see no impact, and farmers and landowners should even consider possible benefits. "In some cases, farmers who rent land to a solar company will insure the viability of their farming operation for a longer time period. This makes them better long-term tenants or land buyers so one can argue that higher rents and land values will follow due to the positive economic impact the solar leases offer," he explained.

Rich Kirkland, who owns Kirkland Appraisals in Raleigh, North Carolina, began exploring solar a little over a decade ago, or as he puts it, "right around the whole recession period, when solar really began to take off around here."

Since then, Kirkland has prepared property value impact studies for solar developers in 19 states, performing nearly 100 matched-pair analyses along the way. In a large majority of those comparisons, he observed a -5% to 5% difference in square foot sales prices, a range that he describes as statistically insignificant.

"If you take all of those matched-pairs and average them out, you'll find a difference of about 1%. That's not enough to make a claim on," he says.

Similar to Halderman, Kirkland believes that issues can arise if a solar development is situated too close to a property, or if nothing is done to conceal it from view. However, he concluded, "In rural and suburban areas, I'm not finding any consistent negative impact from solar farms as long as there's at least 100 feet between the [solar] farm and the property, and enough landscaping to hide the panels."

Comments and documentation received from Leo Jochum, 1/9/24