RENEWABLE ENERGY ORDINANCE OF MARSHALL COUNTY, IOWA

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ARTICLE I. TITLE AND PURPOSE

This ordinance shall be known and may be cited and referred to as the Renewable Energy Ordinance of Marshall County, Iowa. The purposes of this ordinance are:

1. To promote the safe, effective and efficient use of renewable energy resources in Marshall County.

2. To provide for a balance between the land use rights of individual landowners and the economic, social, and environmental concerns of the public when installing renewable energy facilities.

3. To provide for county wide, uniform procedures and standards for the installation of renewable energy facilities in Marshall County.

Article II. Definitions

The specific terms listed in this Article shall be defined as follows whenever those terms are used within the text of this ordinance. Terms Defined.

ABANDONMENT. The state in which a Solar Farm Energy System, or portion thereof, has ceased to produce energy for at least three-hundred sixty-five (365) consecutive days.

ADMINISTRATOR. Shall refer to the Zoning Administrator of Marshall County, Iowa.

BEST MANAGEMENT PRACTICES (BMP). 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.

BOARD OF SUPERVISORS. Shall refer to the Board of Supervisors of Marshall County, Iowa.

BUILDING PERMIT. A permit issued by Marshall County Zoning Administrator for any erecting, constructing, reconstructing, enlarging, altering or moving of any building or structure.

COMMERCIAL WECS. Shall mean a wind energy conversion system of equal to or greater than 50 kW in total name plate generating capacity.

CONSUMER SCALE BATTERY ENERGY STORAGE SYSTEM. Smaller-scale battery systems are designed for residential and commercial use. They store energy, typically from renewable sources like solar panels, for later use.

CONSUMER SCALE SOLAR ENERGY SYSTEM. An SES where the energy produced is primarily intended for consumption on the subject property and/or one or more adjoining properties. Excess energy generated by the System may be sold and distributed to an electrical utility provider serving the general public, but as designed, the majority of the energy generated will be consumed on site. This typically involves a private residential, agricultural, or commercial property where the rooftop or ground-mounted solar panels are owned and maintained by the landowner.

COUNTY ENGINEER. Shall refer to the County Engineer of Marshall County, Iowa.

DECOMMISSIONING. The complete removal of all components of a Renewable Energy System, including accessory structures, following the permanent ceasing of operations – either through abandonment or planned termination at the end of its useful life.

DEVELOPER. The person(s) and/or entit(ies) pursuing the development of a Renewable Energy System, who are responsible for submitting a Conditional Use Permit application and all required attachments necessary for the review and approval thereof by the County.

EASEMENT. A grant of one or more of the property rights by the owner to, or for the use by, the public, a corporation or another person or entity.

FLOODPLAIN. Any area susceptible to being inundated by water as a result of a flood. Also referred to as Special Flood Hazard Area (SFHA).

IOWA RIVER BOTTOM. The low-lying land along the Iowa River, specifically within its floodplain which is often subject to seasonal flooding and deposition of sediment.

INHABITABLE DWELLING. A structure designed for human occupation that is safe, secure and equipped with essential services, such as functional plumbing, heat, running water and electrical lighting.

LAND EVALUATION AND SITE ASSESMENT (LESA) SYSTEM. A point system which evaluates a site's suitability for agricultural use in relation to soil productivity and locational, economic and governmental factors. The LESA System consists of two (2) parts:

1. Land Evaluation: The land evaluation part rates soil productivity. Soils are rated and placed into groups according to their suitability for a stated agricultural use (i.e. cropland). Relative point values, established by the State Natural Resources Conservation Service, are assigned to each group.
2. Site Assessment: The site assessment part identifies locational and other factors, other than soil productivity, that contribute to the suitability of a site for agricultural use. Each factor is weighted and assigned a range of values, established by the Marshall County Land Use Plan Committee, Zoning Commission and Board of Supervisors, according to local needs and objectives.
3. The result of the LESA evaluation is a numerical score for a given site ranging from 0-300 points, with higher scores indicating a higher suitability for agricultural use.

LOW IMPACT DEVELOPMENT (LID). Measures the applicant will take during construction to minimize negative impact to long-term soil health and future agricultural viability.

MAINTENANCE, SOLAR FARM ENERGY SYSTEM. Any activity undertaken by the operator of a Solar Farm Energy System during the course of its operational lifespan, for the purpose of making repairs, cleaning the equipment, evaluating its performance, or assessing the condition of individual components.

NON-COMMERCIAL WECS. A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a total name plate generating capacity of not more than 50 kW and which is intended to primarily reduce onsite consumption of utility power.

OCCUPIED DWELLING. A building that contains one or more dwelling units intended for residential use – whether occupied by the owner or unrelated individuals paying rent, and which is occupied for year-round or seasonal use by one or more households or actively marketed for sale or rent at the time a Renewable Energy System is proposed to be built in the nearby vicinity. This term shall not apply to any such building which is vacant year-round and not being actively marketed for sale or rent at the time the System is proposed. It shall also not apply to any accessory buildings such as garages that are not used for human habitation.

OPERATOR. The person(s) and/or entit(ies) responsible for the day-to-day operation and maintenance of a Renewable Energy System, including any third-party subcontractors. This term shall apply to all subsequent operators of the System, if such responsibility is transferred at any point during its operational lifespan.

OWNER. The person(s) and/or entit(ies) that own the structures and equipment comprising a Renewable Energy System, regardless of whether or not they also own the land upon which it is situated. This term shall apply to all subsequent owners of the System, if ownership is transferred at any point during its operational lifespan.

PARTICIPATING PROPERTY. Any property on which a portion of a Renewable Energy System is physically located. In any instance where a property under common ownership is split into multiple adjacent parcels for taxation purposes (using section, quarter-section, and quarter lines from the Public Land Survey System), the entire property shall be considered a 'participating property', regardless of whether or not each individual tax parcel physically contains a portion of the (RES).

NATIVE VEGETATION. Native vegetation shall be defined as a seed mix plan that meets 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.

NON-PARTICIPATING PROPERTY. Any property that is located near a Renewable Energy System but does not physically contain a portion of that System.

SHADOW FLICKER. The alternating changes in light intensity, or visual effect, that can occur at times when the rotating blades of wind turbines cast moving shadows on the ground or structures.

SPECIAL FLOOD HAZARD AREA. The land within a community subject to the "100-year flood". This land is identified as Zone A on the community's Flood Hazard Boundary Map.

SPECIAL USE PERMIT. Many land use activities, while not inherently inconsistent with other permitted uses in a particular zoning District, may have significant impacts on the surrounding area. Special Use Permits allow special conditions to be "attached" to the development to address those impacts. The Special Use Permit process provides for flexibility in identifying the special conditions without making the Ordinance unreasonably complicated. The objective of the Special Use Permit process is to encourage compatibility of the proposed development with the environment, and with existing and future land uses in the area.

SOLAR ENERGY SYSTEM (SES). A system of infrastructure used for the conversion of solar energy from the sun into electricity, using a series of panels designed to collect energy from the rays of the sun.

STRUCTURE. Anything constructed or erected with a permanent location on the ground, including dwellings, civic buildings, retail stores, offices, factories, utility stations, wind turbines, freestanding solar arrays, garages, sheds, barns, livestock pens and grain bins.

ROTOR. The rotating part of a wind turbine, including either the blades and blade assembly or the rotating portion of a generator.

TOTAL TURBINE HEIGHT. The vertical distance measured from the ground level at the base of the tower to the tip of the turbine blade (rotor) when at its maximum height.

TOWER. The base structure that supports and elevates a wind turbine rotor and nacelle.

TRANSMISSION LINE. The electrical power lines that carry voltages of at least 69,000 volts (69KV) and are primarily used to carry electric energy over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.

UTILITY SCALE BATTERY ENERGY STORAGE SYSTEM. A large-scale rechargeable battery system that stores energy and releases it to the power grid when needed, helping to stabilize the grid and integrate more renewable energy.

UTILITY SCALE SOLAR ENERGY SYSTEM. A utility-scale SES where the energy produced is primarily intended to be distributed to the electrical power grid for use by the public at large, either within Marshall or elsewhere. Little, if any of the energy produced will be consumed on the subject property and/or adjoining properties. This usually involves private agricultural land, where one or more landowners lease the land to a solar energy company, which owns and maintains the solar equipment.

WIND TURBINE. A single wind energy conversion system that converts the kinetic energy of wind into electrical energy through the use of wind turbine generator and includes but it not limited to the nacelle, rotor, tower, and pad transformer.

Article III. Applicability and Approval

This ordinance does not extend to the general maintenance and repair, or repowering of utility-scale energy facilities permitted, installed, or modified prior to the effective date of this ordinance.

1. Application Approval

Applications for permits shall be approved in Accordance with Article XVIII of the Marshall County Zoning Articles.

All construction will require a building/zoning permit in Accordance with Article XIX of the Marshall County Zoning Articles.

2. Timeline for Review and Approval

Marshall County shall complete an initial review of the application to determine whether the required elements in the application established within this ordinance are present and shall provide written notice of completeness or issue a notice of deficiency as to completeness within 30 calendar days of receipt of the application.

The notice of deficiency must include a list of each requirement included in this ordinance with which the applicant has not sufficiently demonstrated compliance and issue a recommendation and timeline for achieving sufficient compliance.

The Marshall County Zoning Commission, Marshall County Board of Adjustment and Marshall County Board of Supervisors require separate public hearings in accordance with their public participation requirements prior to issuance of a conditional/special use permit. Notice of the hearings will be published in a newspaper of general circulation in Marshall County.

The Marshall County Board of Supervisors shall approve or deny the application within 60 days after receiving the application. The applicant and BOS may jointly agree to extend this deadline by up to 60 days.

The Marshall County Zoning Administrator will grant a building permit for the work described in application within 14 days of Marshall County Board of Supervisors' approval.

ARTICLE IIII. Non-commercial, wind energy conversion system (NCWECS)

Non-commercial wind energy systems shall be permitted as Accessory Use within any district where the use is allowed. A building permit and site plan must be submitted to the Zoning Administrator prior to any construction. Certain requirements as set forth below shall be met:

1. Tower Height
    a. For property sizes of one acre or more the tower height shall be limited to 140 feet.
2. Setbacks
    a. No part of the wind energy system structure, including guy -wire anchors, may extend closer than 10 feet to the property lines of the installation site.
3. Noise
    a. Non-commercial wind energy systems shall not exceed 55 dBA, as measured at the closest neighboring occupied dwelling.
    b. The noise level may be exceeded during short term events such as utility outages and/or severe windstorms.
4. Approved NCWECS
    a. Small wind turbines must have been approved by a small wind certification program recognized by the American Wind Energy Association.
5. Compliance with zoning codes
    a. Building permits for NCWECS shall be accompanied by standard drawings of the wind turbine structure including tower base and footings.
    b. An engineering analysis of the tower showing compliance with the official building code of the governing body and/or the State of Iowa and certified by a professional engineer shall also be submitted.
6. Compliance with FAA regulations
    a. NCWECS systems must comply with applicable FAA regulations, including any necessary approvals for installations near airports.
7. Compliance with the National Electrical Code
    a. Permit applications shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.
8. Utility Notification
    a. A NCWECS shall not be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator.
    b. Off-grid systems shall be exempt from this requirement.
9. Abandonment
    a. The tower will be considered abandoned in the following circumstances:
        i. After one year without use.
            1. Exceptions could be made for:
                i. A force majeure event that has occurred or is occurring which will prevent the facility from resuming operation within 12 months.

ii. If the facility is in the process of being repaired.
iii. A situation in which the project owner can provide evidence to the Zoning Administrator, 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.
iv. 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.

b. The Zoning Administrator shall provide the tower owner with a written notice if the tower is suspected of being in a state of abandonment. Upon issuance of written notice to show cause by the Zoning Administrator, the tower owner shall have 30 days to show preponderance of evidence that the tower has been in use or under repair during the period of apparent abandonment. In the event the tower owner fails to show that the tower had been in use or under repair during the relevant period, the Zoning Administrator shall issue a final determination of abandonment of the site. The tower owner will have 30 days after the abandonment notice to dismantle or relocate the tower. In the event the tower is not dismantled and removed, the tower shall be declared a public nuisance by the Zoning Administrator. The Planning and Zoning Administrator or other officer authorized by the county may issue a civil citation to the landowner based on the penalty schedule outlined in Article XXI of the Marshall County Zoning Articles.

Article V. Utility scale wind energy conversion system (UWECS)

UWECS wind shall be permitted within any district where the use is allowed. A building permit must be submitted to the Zoning Administrator prior to any construction.
Certain requirements as set forth below shall be met:

1. A conditional use permit shall be submitted and reviewed prior to the approval of UWECS.
    a. Additional information. An application for a UWECS shall also include the following information on the major site plan, or in narrative form, supplied by the UWECS Owner, Operator or contractor installing the turbines.
    b. Legal description of all properties leased and/or owned, that are identified to be part of the project area.
    c. Project development timeline which indicates how the applicant will inform adjacent property owners and interested stakeholders in the community
    d. A description of the project including number and location of proposed turbines, type, name plate generating capacity, spacing distance, blade diameter, ground clearance, and total turbine height.
    e. Planned location of underground or overhead electric lines, grid interconnection points, project entrances, staging areas, and access roads required during construction and post construction.
    f. Pre-construction survey of nearby roads that may be impacted by construction of the facility.
    g. Interconnection agreement
    h. Site and structure requirements including:
        i. Grading plan
        ii. Avoidance and mitigation of damage to public infrastructure
    i. Visual impact analysis including:
        i. Shadow flicker analysis
        ii. Viewshed analysis
    j. Noise impact analysis
    k. Operation and maintenance plan
    l. Decommissioning plan
    m. Agricultural impact mitigation plan
    n. Wildlife monitoring and mitigation plan
    o. Emergency response plan

2. Site and structure requirements
    a. Setbacks. A wind energy conversion systems (WECS) setback distance shall be measured from the exterior edge of a turbine base to the inhabitable dwelling of nonparticipating landowner property, to inhabitable structures on participating landowner property, to the property line of public parks or property containing occupied community buildings, to public road right-of-way or active railroad right-of way, and to the edge of identified Marshall County Conservation areas and the Iowa River bottom.
        i. Participating landowner properties. Turbines on participating property shall be a minimum of one and one-tenth (1.1) times the Total Turbine Height from the exterior edge of the tower base to any occupied structure.
        ii. Non-participating landowner properties. Turbines shall be a minimum of two and two tenths (2.2) times the Total Turbine Height from the exterior edge of the tower base to any inhabitable structure.
            1. Non-participating property owners may waive such a setback through written acceptance and approval by the Marshall County Board of Adjustment and the County Board of Supervisors. No such waiver shall allow turbine placement closer than one and one-tenth (1.1) times the Total Turbine Height to any non-participating landowner property line. Any waivers accepted and approved by the Board of Supervisors shall be recorded by the applicant.
        iii. Turbines shall be located at a minimum of one and one-tenth (1.1) times the Total Turbine Height to any public road or active railroad right-of way.
        iv. Marshall County Conservation areas and Iowa River Bottom
            1. Turbines shall be located a minimum of two (2) miles away from the property line of a Marshall County Conservation area or edge of the Iowa River Bottom. Marshall County can only waive this setback requirement from a Marshall County Conservation area with the recommendation of the Marshall County Conservation Board, Marshall County Zoning Commission, Marshall County Board of Adjustment and the Marshall County Board of Supervisors. No such waiver shall allow turbine placement closer than one and one-tenth (1.1) times the Total Turbine Height to any Marshall County Conservation area.

                -Change recommendation to approval to open up ability to develop a Community Benefits Agreement . Allows Conservation Board to negotiate with developer on reduced setbacks.

                -2.2 times the turbine height is double the standard of 1.1x in Iowa
        v. Occupied community buildings and public parks
            1. Turbines shall be located at a minimum of two and two-tenths (2.2) times the Total Turbine Height to of any occupied community building or public park.
    b. Utility connections. All utility connections shall be placed underground depending on appropriate soil conditions, shape and topography of the site, distance to the connection, or other conditions or requirements. All utility connections shall also

be placed in compliance with all state, federal and existing local laws, rules and regulations.

c. Grading plan. A grading plan shall be submitted and include all proposed changes to the landscape of the site (e.g., clearing, grading, topographic changes, tree removal, etc.).
d. Compliance with local, state and federal regulations. All UWECS shall comply with applicable local, state and federal regulations including all Federal Communications Commission (FCC) or Federal Aviation Administration (FAA) regulations.
e. Floodplain considerations. All UWECS are considered maximum damage potential structures and facilities for purposes of the floodplain district regulations. Utility scale solar installations are to be prohibited in Floodway (Overlay), District FW, Floodway Fringe (Overlay) District FF and General Flood Plain (Overlay) District FP. Utility transmission lines may be permitted as a conditional use according to Article XII of Marshall County Zoning Articles.
f. Appurtenant structures. All appurtenant structures shall be subject to bulk and height regulations of structures in the underlying zoning district.
g. Interference. Any signal interference complaints associated with installed UWECS, or related equipment shall be addressed in accordance with FCC or FAA rules and procedures.
-Not sure what the rules are for FCC and FAA-do we need to add the word "resolved"
h. Other permits and approvals. UWECS Owner/Operator shall obtain all necessary permits and approvals from the Iowa Utilities Commission (IUC), Federal Energy Regulatory Commission (FERC), and/or any other applicable regulatory bodies.
i. Structure Requirements
    i. Aesthetics. Towers/facilities shall meet the following general requirements:
        1. Lighting
            i. Towers/facilities, including antennas, shall not be artificially lighted unless required by the FAA or applicable authority. Unless required as the only option by the FAA, strobe lighting is not permitted. All mandated FAA requirements must be provided in writing to the Board of Adjustment prior to any action on applications.
        2. Aircraft Detection Lighting System
            i. Use of ALDS technology is encouraged on all wind turbine projects if applicable.
            -Change encouraged to required
        3. Signs
            i. No signs shall be allowed on any tower/facility, other than safety or warning signs. If any signage is required consistent with this standard, such signage must comply with the requirements of Article XV of the Marshall County Zoning Articles.

3. Avoidance and mitigation of damages to public infrastructure

a. Roads. Applicants shall identify all roads to be used for the purpose of transporting UWECS components, substation components, cement, and/or equipment for construction, operation or maintenance of the UWECS and obtain applicable weight and size permits from the impacted road authority prior to construction.
b. Existing road conditions. Applicant shall conduct a preconstruction survey, in coordination with the impacted local road authority to determine existing road conditions. The survey shall include photographs and a written agreement to document the condition of the public facility. The applicant shall enter into a Road Use Agreement with Marshall County Secondary Roads that clearly details responsibilities for on-going road maintenance and dust control measures for all identified Marshall County jurisdictional roads during all phases of construction. At construction completion, Applicant shall conduct and provide evidence of a post construction roadway conditions survey, in accordance with the Road Use Agreement and in coordination with Marshall County Secondary Roads, to determine Marshall County Road conditions meet the Marshall County Engineers satisfaction.
c. Drainage system. The applicant shall be responsible for repair of damage to public drainage systems stemming from construction, operation or maintenance of the UWECS. Applicant shall acknowledge any damage to public drainage systems and the responsibility for repair in a timely manner within 72 hours of damage discovery.
d. Required financial security. The applicant shall be responsible for restoring or paying damages as agreed to by the applicable road authority sufficient to restore the roads and bridges to preconstruction conditions. Financial assurance mechanism(s) in the form of a performance bond and/or other security approved by the Marshall County Attorney's Office shall be submitted covering 130 percent of the costs of all required improvements. This requirement may be waived or modified by the Marshall County Board of Supervisors on recommendation from the Marshall County Engineer.
-How will they know what the costs could be until after the project. I am not sure what number they used to multiply by 130 percent.
The main item that they should include is a timeline for doing the repairs. Currently there is only a timeline set for the acknowledgement of the repair, when there also needs to be one for the actual repair.

4. Visual impact analysis. All WECS shall be required to be of a neutral, non-reflective, nonobtrusive color which must be maintained throughout the life of the product to mitigate visible oxidation or corrosion. The analysis shall include but is not limited to:
    a. Shadow flicker Analysis. The UWECS facility Owner/Operator shall operate the installation in a manner that does not cause more than 30 hours of annual shadow flicker on any occupied residential building, occupied community building or other public facility. A shadow flicker analysis shall be required demonstrating conformance to this requirement. In the event shadow flicker exposure time resulting from a wind farm exceeds the criteria listed herein, a waiver to said levels

may be granted by the Board of Supervisors upon recommendation by the Board of Adjustment, provided that the following has been accomplished:

i. Written consent from the affected property owners has been obtained stating they are aware of the wind farm and the shadow flicker limitations imposed by the Ordinance, and that consent is granted to allow shadow levels to exceed the maximum limits otherwise allowed.
ii. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent shadow flicker impact easement shall be recorded which advises all subsequent owners that shadow flicker is in excess of the Ordinance requirements.

b. Viewshed analysis. The UWECS facility Owner/Operator shall submit a Zone of Visual Influence (ZVI) analysis detailing the area of land around the project where the turbines will be seen.

5. Noise Analysis. No operating wind energy system equipment shall produce decibel levels exceeding any of the following limitations, with the exception of initial construction and routine maintenance. Adequate setbacks and effective sound mitigating equipment shall be used to comply with these limitations:
    a. The average hourly turbine decibel level shall not exceed fifty-five (55) dBA as measured from the inhabitable dwelling of each property. The average decibel limit is specific to source of the sound and does not count against cumulative ambient decibel levels as established in a baseline acoustic evaluation.
    b. The average hourly decibel level may be exceeded during short-term events such as severe windstorms.
    c. A pre- and post-construction noise evaluation shall be completed by a certified professional by the Institute of Noise Control Engineering (INCE), or a licensed Professional Engineer (PE) to verify compliance with the County's standards.
    d. A noise evaluation will be completed when a formal complaint is received by the zoning administrator. Noise evaluation will be at operators' expense, performed by a certified professional by the Institute of Noise Control Engineering (INCE), or a licensed Professional Engineer (PE) to verify compliance with the County's standards.
6. Operation and maintenance plan. The UWECS facility Owner/Operator shall submit an operation and maintenance plan 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, equipment pads, transformers, access entrances, internal roads, gates, fencing, security systems, grounding equipment and stormwater management installations.
    b. Annual reporting and verification to the 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 and decommissioning plan.

d. Issue resolution protocols. Contact information for the responsible party to address issues that may arise (damaged equipment, excessive noise, or other similar issues).
e. Disposal/recycling plan for damaged or obsolete facility equipment or hazardous waste. No storage of inoperable, damaged or otherwise obsolete equipment shall be allowed to remain on property within the approved project site. The current UWECS operator and all successor operators shall be responsible for debris cleanup, removal and property restoration to all participating, and non-participating property, resulting from natural disaster, severe weather event, mechanical failure, fire or act of vandalism to any project property and equipment. A debris cleanup and property restoration effort shall not be considered complete until receiving Zoning Administrator or Board of Supervisor approval.
f. Chemicals and solvents. During operation of the proposed installation, all chemicals or solvents used for the cleaning, de-icing or general operation of a wind turbine shall be low in volatile organic compounds. The operator should use recyclable or biodegradable products to the extent possible. Any on-site storage of chemicals or solvents shall be referenced.
g. Maintenance or repair. Maintenance or repair shall include, but not limited to, tower repair, painting, nacelle refurbishment or replacement, rotor repair or replacement, and integrity of security measures. Site access shall be maintained to a level acceptable to emergency response officials. Any maintenance, repair, retrofit, replacement or refurbishment of equipment shall adhere to all applicable local, state and federal requirements. Any maintenance, repair, retrofit, replacement or refurbishment of a WECS that increases the height of previous approved turbine shall, at a minimum, require zoning administrator review and approval.
h. Repowering. At the discretion of the zoning administrator, proposals to replace, upgrade or increase in height, more than twenty five percent (25%) of the WECS in a previous approved project 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 WECS in previously approved locations due to weather damage, equipment failure, or a force majeure event.
    i. The plan shall include updated information for some, or all, of the reports and plans required by this section, as determined necessary by the zoning administrator.
    ii. The zoning administrator shall review and approve, conditionally approve, or deny the repowering plan.
    iii. Any repowering project will require approval from the zoning administrator, the BOA and the County BOS.
i. Wildlife impact. (see Wildlife Monitoring and Mitigation Plan)

7. Decommissioning, abandonment, and site restoration plan.
    a. The UWECS facility Owner/Operator shall submit a decommissioning plan that describes the following:
        i. The anticipated life of the UWECS facility.

ii. The anticipated manner in which the facility will be decommissioned, including plans to recycle components and dispose of any hazardous materials.
iii. The anticipated site restoration activities.
iv. The estimated decommissioning costs in current dollars.
v. The method for ensuring that funds will be available for decommissioning and restoration of the site.
vi. Anticipated timeline to complete decommissioning activities and site restoration.

b. 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.
    i. Removal of any hazardous materials at the facility, as determined by a Toxic Characteristic Leaching Procedure (TCLP) or other similar test approved by Marshall 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.
    ii. Salvage value shall not be included in the cost estimate.
    iii. The cost basis shall include a mechanism for calculating adjusted costs over the life of the project. Cost adjustments shall be refigured every 3 years.
    -Recommend having an independent party create the estimate of net costs for decommissioning.
c. Site restoration activities. Restoration activities shall include, but not be limited to, the following:
    i. Removal of all UWECS related equipment, power lines, and footings to a minimum depth of four (4) feet.
    ii. Soil in project area shall be restored to original condition.
    iii. 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 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.
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 from 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 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. 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 wind energy system leases/easements or
        2. After one year without production, storage of energy, or use as a backup facility.
        3. Exceptions could be made for:
            i. A force majeure event that has occurred or is occurring, which will prevent the facility from resuming operation within 12 months.
            ii. If the facility is in the process of being repowered.

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

8. Agricultural Impact Mitigation Plan (AIMP)
    a. The UWECS facility Owner/Operator 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 wind energy system project. The primary goals of the AIMP are long-term protection of soil health and farming feasibility within the project area. An emphasis is placed on minimizing the area of project disturbance and limiting impact to surface and subsurface drainage, during both construction and decommissioning.
    b. The AIMP shall include, but not be limited to:
        i. Project overview. Provide general background, list of project components, and construction timeline.
        ii. Environmental/agricultural monitoring
            1. Reports of project area condition will be given prior to construction, halfway through project and at project completion.
            2. Development Plan shall include:
                i. Soil segregation, stockpiling, backfilling, respreading methods
                ii. Trenching, directional boring & foundation installation
                iii. Compaction avoidance and decompaction practices
                iv. Grading plan adherence
                v. Wet weather conditions planning
                vi. Drain tile system
                vii. Erosion and sediment control measures
        iii. Best Management Practices During Construction and Decommissioning
            1. Best Management Practices (BMPs) shall be included that demonstrate Low Impact Development (LID) measures the applicant will take during construction or decommissioning. These measures should identify topsoil type and depth for preservation and reapplication, reduce or mediate compacted soils, utilize trenchless technologies, minimize soil disturbance.
        iv. Subsurface Drain Tile Survey, Avoidance & Mitigation Plan

1. Documentation and mapping of existing drain tile systems shall be requested by the developer. Mapping should include current and proposed underground conduit locations/easements.
2. A plan for relocation, removal or restoration of tile damaged during construction shall be developed.
3. Description of long-term maintenance and plan for ongoing review of existing and newly constructed tile systems (if applicable).

v. Pre-construction and Decommissioning Soil Health Analysis
    1. Prior to construction, a soil analysis shall be conducted and assessed by a third-party professional to establish baseline soil health.
    2. Required sampling protocol:
        i. Pre-Construction Baseline Survey
            i. One sampling location per turbine site, drop zones (if distinct from turbine site), and representative sample of access roads based on soil mapping unit as identified in the USDA Soil Survey
            ii. 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).
            iii. 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, prior to construction, to establish a baseline.
            iv. 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.
            v. Soil sample analyses shall utilize a laboratory testing program that includes standard analysis of the following:
                1. OM
                2. P1
                3. P2
                4. K
                5. Mg
                6. Ca
                7. Na
                8. Soil pH
                9. Buffer pH
                10. CEC
                11. Base Saturations of K, Mg, Ca, H, Na

12. Micro's- S, Zn, Fe, Cu, B, Soluble Salts
13. Organic Carbon
14. Organic Nitrogen
15. Carbon to Nitrogen ratio
16. Water Soluble
17. Nitrate-N
18. Ammoniacal-N
19. Orthophosphate
20. Carbon
21. Total N

ii. Decommissioning or Project Modification survey
    i. Same sampling protocols as preconstruction baseline survey.
    ii. Third-party evaluation and report on soil condition changes against baseline data.

vi. Soil Protection and Compaction Avoidance
    1. 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 post-construction decompaction.
        i. All project areas in agricultural production at the time of permit issuance, that will not remain in agricultural production, 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.

vii. 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 if 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.

9. Wildlife Monitoring and Mitigation Plan (WMMP)

a. The UWECS facility Owner/Operator shall submit a WMMP to mitigate risk to avian and bat populations during the construction and operation phases of the project. The purpose and procedures shall be designed to ensure:
    i. Avian and bat fatalities and secondary effects on wildlife are minimized.
    ii. Project-related actions comply with federal and state wildlife regulations.
    iii. Adequate implementation training is provided for the construction contractor and operations and maintenance staff.
    iv. Coordination between the project developers and operators, wildlife agencies including Iowa Dept of Natural Resources (IDNR), and the Iowa Utilities Commission (IUC) is effective and continuous.
b. The WMMP shall include, at a minimum, a narrative including the following:
    i. Local, state and federal regulatory framework
    ii. Site characterization
    iii. Field studies documenting UWECS project area wildlife conditions and predict project impact
    iv. A baseline study of the avian and bat habitat within the project boundary and a 2-mile perimeter outside the project boundary. It shall be conducted by third-party licensed professionals.
    v. Preconstruction/construction avoidance and minimization measures
    vi. Operation and maintenance procedures
        1. Post construction avian and bat fatality monitoring conducted by third party licensed professional for three years following completion of the project construction phase.
        2. Upgrades or retrofits to existing UWECS should not result in increased avian/bat collisions. The 3-year monitoring timeline shall restart after 12 months of discontinued operation of any UWECS following a repair, retrofit, or repowering event.
    vii. Quality control and mitigation procedures

10. 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 UWECS 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 on the environment.
        i. 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.
        ii. The plan shall include a method for ensuring that funds will be available for debris cleanup. The Performance Agreement and accompanying financial surety instrument for debris cleanup shall mirror the terms set forth in

Subsection (9)(d), except that the contingency amount shall be 50%. The Performance Agreement shall provide that if the site operator fails to complete debris cleanup following a casualty event in accordance with this Ordinance, the County may utilize the financial surety instrument to cause the same.

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

iv. The plan shall be developed in coordination with Marshall County Emergency Management and local first responders as needed.

11. Future Operators.

a. 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.

Article VI. Meteorological Evaluation Towers

1. Permitting Requirements. When proposed for temporary use in relation to a proposed Wind Energy Conversion System, meteorological evaluation towers shall require an approved Special Use Permit prior to being placed or installed at a given location for assessing wind conditions. In total, the developer shall provide all of the following to the Administrator when applying for a Special Use Permit:
    a. The location of the proposed meteorological evaluation tower(s).
    b. The number of individual properties contained within or directly impacted by the tower(s).
    c. The size and height dimensions of the tower(s).
    d. The length of the anticipated timeframe during which the tower(s) will be in place.
    e. Contact information for all representatives of the developer that will be involved in the permitting and review process.
    f. A Site Plan, comprised of a map and any associated diagrams or illustrations, which contains all of the following information:
        i. The location of all proposed tower(s) structures and associated anchors for guy-wires.
        ii. A line marking a radius of one thousand (1,000) feet surrounding the base of each tower.
        iii. The location of any existing buildings or structures within one thousand (1,000) feet of each proposed tower(s), measured from the base, and measurements to indicate the distance between it and each of these buildings and structures. Setback measurements for structures on nonparticipating properties may be approximated using aerial photography.
        iv. The locations of all driveway entrance points for obtaining access to individual tower(s), as well as any other private entrances to the public roadway system within one thousand (1,000) feet of them.
    g. Formal documentation of agreements signed between the developer and all properties upon which the proposed tower(s) will be located.
    h. Documentation of any driveway permits from the Marshall County Engineer, for any new entrances from a county roadway necessary to access a tower.
    i. Documentation of any and all applicable permits issued by other permitting agencies at the Federal, State or Local level.
2. Review and Approval.
    a. A Special Use Permit may be issued only after review and approval of the submitted application, including any plans, by the Board of Adjustment. An application and plan shall only be approved upon a determination that the development, if completed as proposed, will comply with the provisions of Marshall County Zoning Article XVIII and this ordinance.
3. Minimum Siting Standards.
    a. For any meteorological evaluation tower, the minimum distance between it and any right of way or utility line shall be one and one-tenth (1.1) times the height of

the tower, with this distance measured from the point at which the applicable structure or utility line would be the closest to the base of the tower, on a horizontal plane extending between the two.

b. The minimum distance from an occupied building shall be a distance of no less than the greater of two times its total system height or 1,000 feet.

c. Participating landowner property and non-participating property owners may waive such a setback through written acceptance and approval by the Marshall County Board of Adjustment and the County Board of Supervisors. No such waiver shall allow tower placement closer than one and one-tenth (1.1) times the Total Tower Height to any participating or non-participating landowner's occupied dwelling. Any waivers accepted and approved by the Board of Supervisors shall be recorded by the applicant.

4. Removal.
    a. All meteorological evaluation towers shall be removed within one (1) year of the commencement of operations for an associated CWECS.
5. Abandonment
    a. Any towers determined by the Administrator to be abandoned shall be removed at the expense of the developer, and failure to comply shall constitute a violation of this Ordinance, subject to the penalties outlined in Article V, Section 7.

Article VI. Non-commercial utility solar conversion system (NCUSCS)

Non-commercial utility solar conversion systems shall be permitted as Accessory Use within any district where the use is allowed. A building permit and site plan must be submitted to the Zoning Administrator prior to any construction. Certain requirements as set forth below shall be met:

1. Minor site plan and permits. A minor site plan shall be submitted and reviewed as part of the building permit application. All required permits shall be obtained prior to the construction of an NCUSCS.
2. Site and structure requirements.
    a. Solar access easements are allowed. Solar access easements may be filed consistent with I.C.A. § 564A.7.
    b. Setback. Ground mounted consumer scale solar installations must adhere to the minimum setback standards for accessory structures for the zoning district where the project is located. Roof mounted consumer scale solar installations must adhere to the minimum setback standards for the applicable structure type and zoning district where the project is located.
    c. Floodplain considerations. NCUSCS are to be prohibited in Floodway (Overlay) District FW, Floodway Fringe (Overlay) District FF and General Flood Plain (Overlay) District FP. Utility transmission lines may be permitted as a conditional use according to Article XII of Marshall County Zoning Articles.

Article VII. Utility scale solar conversion system (USSCS)

USSCS installation shall be permitted within any district where the use is allowed. A building permit must be submitted to the Zoning Administrator prior to any construction. Certain requirements as set forth below shall be met:

1. A conditional use permit shall be submitted and reviewed prior to the approval of USSCS. A LESA study will be conducted by the Zoning Administrator within 14 days of submittal.
    a. An application for a USSCS shall also include the following information on the major site plan, or in narrative form, supplied by the USSCS Owner, Operator or contractor installing the structures.
        i. Legal descriptions of all properties, leased and/or owned, identified to be part of the project area.
        ii. Number, location and spacing of solar panels/arrays.
        iii. Planned location of underground or overhead electric lines.
        iv. Project development timeline which indicates how the applicant will inform adjacent property owners and interested stakeholders in the community.
        v. Pre-construction survey of nearby roads that may be impacted by construction of the facility.
        vi. Interconnection agreement.
        vii. Operation and maintenance plan.
        viii. Decommissioning plan.
        ix. Agricultural Impact Mitigation Plan
        x. Vegetative Management Plan
        xi. Wildlife/Biological Habitat Assessment and Mitigation Plan
        xii. Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.
        xiii. Emergency Response Plan

2. Concentrating solar power systems. To encourage utility scale photovoltaic solar installations. Concentrating solar power (CSP) systems shall be prohibited.

3. Site and structure requirements.
    a. Public setback requirements.
        i. 1 mile from public/private airports or heliport boundary
            1. USSCS systems must comply with applicable FAA regulations, including any necessary approvals for installations near airports.
        ii. 50 feet from public road or active railroad right-of-way
        iii. 120 feet from the centerline of all stream corridors and open ditches containing perennial flow throughout the majority of the growing season.
        iv. 175 feet from the center of road intersections

v. 200 feet from cemeteries

b. Inhabitable dwelling requirements.
    i. 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.
c. Screening.
    i. Project shall provide a vegetative screening if there are any inhabitable dwellings within 1,000 feet of the project boundaries.
    ii. The applicant shall submit a screening plan for each dwelling within 1,000 feet of the project boundaries.
    iii. Screening may be waived by the owner of a dwelling. Waivers must be in writing and recorded.
    iv. Screening may be waived for the project 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.
    v. Applicant shall notify property owners with occupied dwellings within 1,000 feet of the project boundaries. Notice shall include the right of property owners to respond within 60 days regarding screening issues. Disputes shall be brought before the Board of Adjustment for consideration and resolution.
    vi. Any vegetative screening within the project boundaries shall be maintained throughout the life of the project by the project owner.
    vii. 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.
    viii. Screening plans shall use no less than two varieties of tree.
d. Utility connections.
    i. 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. All utility connections shall also be placed in compliance with all state, federal and existing local laws, rules and regulations.
e. Grading plan.
    i. 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.).
b. Glare minimization.
    i. 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.
c. Compliance with local, state and federal regulations.

i. Utility scale solar installations shall comply with applicable local, state and federal regulations.

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

e. Floodplain considerations.
    i. Utility scale solar installations are to be prohibited in Floodway (Overlay), District FW, Floodway Fringe (Overlay) District FF and General Flood Plain (Overlay) District FP. Utility transmission lines may be permitted as a conditional use according to Article XII of Marshall County Zoning Articles.

f. Signage.
    i. No signs other than appropriate warning signs, or standard manufacturer's, operator's or installer's identification signage, shall be displayed.

g. Fencing/security.
    i. 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.

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

4. Avoidance and mitigation of damages to public infrastructure.
    a. Roads.
        ii. Applicants 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.
        iii. Applicant shall conduct a preconstruction survey, in coordination with the impacted local road authority to determine existing road conditions. The survey shall include photographs and a written agreement to document the condition of the public facility. The applicant shall enter into a Road Use Agreement with Marshall County Secondary Roads that clearly details responsibilities for on-going road maintenance and dust control measures for all identified Marshall County jurisdictional roads during all phases of construction. At construction completion, Applicant shall conduct and provide evidence of a post construction roadway conditions survey, in accordance with the Road Use Agreement and in coordination with Marshall County Secondary Roads, to determine

Marshall County Road conditions meet the Marshall County Engineers satisfaction.

c. Drainage system.

iv. The applicant shall be responsible for immediate 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.

5. Operation and maintenance plan.
    a. 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:
        v. 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.
        vi. Schedule of all annual, or semiannual reporting requirements for other submittals including agricultural impact mitigation plan, decommissioning plan, and vegetation management plan.
6. Noise Analysis
    a. 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:
        vii. 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 inhabitable 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. The owner(s) of an adjacent property may voluntarily agree, by written and recorded wavier, to a higher noise level.
    c. Issue resolution protocols. Contact information for the responsible party to address issues that may arise (damaged equipment causing excessive noise, etc.).
7. Disposal/recycling plan.
    a. A disposal/recycling plan must be submitted for damaged or obsolete facility equipment or hazardous waste.
    b. No storage of inoperable or obsolete equipment shall be allowed to remain onsite. Site operator shall be responsible for the cleanup of debris related to storm damage.
8. Cleaning chemicals and solvents.

a. 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.

9. Maintenance, repair, or replacement of facility.
    a. 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.
10. Repowering.
    a. 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.
        i. The plan shall include updated information for some, or all of the reports and plans required by this section, as determined necessary by the zoning administrator.
        ii. The zoning administrator shall review and approve, conditionally approve, or deny the repowering plan.
11. Decommissioning, abandonment, and site restoration plan.
    a. The USSCS facility Owner/Operator shall submit a decommissioning plan that describes the following:
        i. The anticipated life of the USSCS facility.
        ii. The anticipated manner in which the facility will be decommissioned, including plans to recycle components and dispose of any hazardous materials.
        iii. The anticipated site restoration activities.
        iv. The estimated decommissioning costs in current dollars.
        v. The method for ensuring that funds will be available for decommissioning and restoration of the site.
        vi. Anticipated timeline to complete decommissioning activities and site restoration.
    b. 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.
        i. Removal of any hazardous materials at the facility, as determined by a Toxic Characteristic Leaching Procedure (TCLP) or other similar test approved by Marshall 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.
        ii. Salvage value shall not be included in the cost estimate.

iii. The cost basis shall include a mechanism for calculating adjusted costs over the life of the project. Cost adjustments shall be refigured every 5 years.

c. Site restoration activities. Restoration activities shall include, but not be limited to, the following:
    i. Removal of all USSCS related equipment, power lines, and footings to a minimum depth of four (4) feet.
    ii. Soil in project area shall be restored to original condition.
    iii. 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 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.
    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 from 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 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. 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 energy system leases/easements or
        2. After one year without production, storage of energy, or use as a backup facility.
        3. Exceptions could be made for:
            i. A force majeure event that has occurred or is occurring, which will prevent the facility from resuming operation within 12 months.
            ii. If the facility is in the process of being repowered.
            iii. The project is pending completion of construction of the facility due to a backlog of cases or service requests in the MISO queue.
            v. 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.
            vi. 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.

12. Agricultural Impact Mitigation Plan (AIMP)
    a. 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.

b. The AIMP shall include, but not be limited to, the following information:
    i. Project overview. Provide general background, list of project components, and construction timeline.
    ii. Environmental/ Agricultural Monitoring
    iii. On-site monitoring to be conducted by third party environmental/agricultural professionals during construction.
        1. Report of findings to be submitted to county prior to construction, at halfway point and upon completion of construction. Responsible for verification and monitoring during and post construction of:
            a. Soil segregation, stockpiling, backfilling, respreading methods
            b. Trenching, & foundation installation
            c. Compaction avoidance and decompaction practices
            d. Grading Plan adherence
            e. Wet weather conditions planning
            f. Drain tile system
            g. Erosion and sediment control measures
            h. Installation and effectiveness of stormwater management structures
            i. Invasive species prevention and mitigation

13. Best Management Practices During Construction and Operation
    a. 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 to 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.
14. Subsurface Drain Tile Survey, Avoidance & Mitigation Plan
    a. The developer will request documentation and mapping of existing drain tile systems within the entire project area including elevation, location, and size of tile inlet and outlets prior to construction.
    b. A plan for relocation, removal or restoration of tile damaged during construction shall be developed.
    c. Description of long-term maintenance and plan for ongoing review of existing and newly constructed tile systems (if applicable).
15. Pre-construction Soil Health Analysis and Long-Term Soil Monitoring Plan
    a. Prior to construction, a soil analysis shall be conducted and assessed by a third-party professional to establish baseline soil health.
    b. Required sampling protocol:
        i. Pre-Construction and Post- Construction Baseline Surveys

1. One sampling location per zone shall be created based on a random sample method or soil type, with each zone not to exceed 20 acres.
2. Two samples shall be collected from each sampling location (for example, the plow layer from O to 8 inches and subsoil from 8 to 16 inches).
3. 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 post- construction to establish a baseline. 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.
4. Soil sample analyses shall utilize a laboratory testing program that includes standard analysis of the following:
    a. OM
    b. P1
    c. P2
    d. K
    e. Mg
    f. Ca
    g. Na
    h. Soil pH
    i. Buffer pH
    j. CEC
    k. Base Saturations of K, Mg, Ca, H, Na
    l. Micro's- S, Zn, Fe, Cu, B, Soluble Salts
    m. Organic Carbon
    n. Organic Nitrogen
    o. Carbon to Nitrogen ratio
    p. Water Soluble
    q. Nitrate-N
    r. Ammoniacal-N
    s. Orthophosphate
    t. Carbon
    u. Total N
5. Decommissioning or Project Modification survey
    a. Same sampling protocols as preconstruction baseline survey.
    b. Third-party evaluation and report on soil condition changes against baseline data.

16. Soil Protection and Compaction Avoidance

a. Plans 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 post- construction decompaction.
b. 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.

17. Erosion and Sediment Control
    a. 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 jurisdiction 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
        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 jurisdiction authorities. Such review may incorporate stormwater management criteria as set forth in the IDNR Storm Water Management Manual for detention of specified rainfall events, and infiltration components consistent with practices as detailed in the state stormwater management manual.
18. Vegetation Management Plan
    a. 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.
    b. The Vegetation Management Plan shall include:
        i. 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.).

ii. 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.

iii. A description of the management objectives for each management area including:
    1. 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.
    2. 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.
    3. 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)

iv. Seeding and planting practices including:
    1. 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.
    2. 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.

3. 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 aid 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.
4. If visual screening is part of the project, provide a complete list of plantings as well as the size of the plantings.
5. Summarize steps taken to ensure that any pesticides used at or near the site will not drift and impact native vegetation.
6. 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.

i. Vegetation monitoring and adaptive management practices to be used on site including:

1. 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.

19. Wildlife and Habitat Assessment and Mitigation Plan
    a. The applicant shall submit a Wildlife and Habitat Assessment and Mitigation Plan detailing strategies to avoid or mitigate 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.
    b. Fenced array areas are limited to 160 acres before establishment of a wildlife corridor shall be required.
    c. Solar panels, structures, electrical equipment, and fencing, excluding power lines for interconnection, through established drainageways. Drainage ways shall be defined as stream corridors and open ditches containing perennial flow throughout the majority of the growing season.
20. 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 on the environment.

b. 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 staging areas.
c. The plan shall include a stand-alone section detailing the emergency response protocols specific to battery energy storage areas (if applicable).
d. The plan shall be developed in coordination with Marshall County Emergency Management and the local first responders

21. Future Operators
    a. 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.

Article IX. Consumer scale battery energy storage systems

Consumer scale battery energy storage systems that are accessory to a principal use and are meant to store energy to be primarily used on-site. A complete application shall include the following:

1. Minor site plan and permits. A minor site plan shall be submitted and reviewed prior to approval.
2. All required permits shall be obtained prior to construction.
3. These installations must adhere to the minimum setback standards for the zoning district where the project is located, and any applicable buffer requirements or floodplain considerations.

Article X. Utility scale battery energy storage systems

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 stand-alone project. A complete application shall include the following:

1. A conditional use permit shall be submitted and reviewed prior to the approval of Utility scale battery energy storage system. A LESA study will be conducted by the Zoning Administrator within 14 days of submittal.
2. Power and communications lines
    a. 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.
3. Utility scale battery energy storage systems shall comply with applicable local, state and federal regulations.
4. 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. LESA Score
    c. Pre-construction survey of nearby roads that may be impacted by construction of the facility.
    d. Interconnection agreement.
    e. Operation and maintenance plan.
    f. Tile investigation report.
    g. Emergency response plan.
    h. Decommissioning plan.
    i. Setback analysis showing the minimum setback requirements, or any agreed on greater setback provisions, are met by the project.
5. 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 inhabitable 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 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.

v. Fencing Requirements. The battery energy storage system, including all mechanical equipment, shall be enclosed with 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.

vi. 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:

1. The landscaping buffer shall preferably use trees, shrubs, grasses and forbs that are native to Iowa, or where appropriate may include naturalized and non-invasive species.
2. 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.
3. 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.
4. 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.

5. 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.

6. Noise Analysis
    a. No operating battery energy storage 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:
        i. 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 inhabitable 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. The owner(s) of an adjacent property may voluntarily agree, by written and recorded wavier, to a higher noise level.
    c. Issue resolution protocols. Contact information for the responsible party to address issues that may arise (damaged equipment causing excessive noise, etc.).
7. 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 UWECS 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 on the environment.
    b. 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.
    c. The plan shall include a method for ensuring that funds will be available for debris cleanup. The Performance Agreement and accompanying financial surety instrument for debris cleanup shall mirror the terms set forth in Subsection (9)(d), except that the contingency amount shall be 50%. The Performance Agreement shall provide that if the site operator fails to complete debris cleanup following a casualty event in accordance with this Ordinance, the County may utilize the financial surety instrument to cause the same.

i. The plan shall be developed in coordination with Marshall County Emergency Management and local first responders as needed.

8. Floodplain considerations. Utility scale battery energy storage system installations are to be prohibited in Floodway (Overlay), District FW, Floodway Fringe (Overlay) District FF and General Flood Plain (Overlay) District FP.