

Utility-Scale Wind Energy Conversion Systems

MODEL ORDINANCE
FRAMEWORK



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Model Ordinance Framework

American Clean Power Association

The American Clean Power Association (ACP) is the leading voice of today's multi-tech clean energy industry, representing over 800 energy storage, wind, utility-scale solar, clean hydrogen and transmission companies. ACP is committed to meeting America's national security, economic and climate goals with fast-growing, low-cost, and reliable domestic power.

About this Document

This document is intended to provide guidance to local governments considering developing an ordinance or rules related to the development of utility-scale wind energy conversion systems that are permitted as a conditional use by the local government's zoning code. The recommendations and considerations included in this framework draw from a variety of sources including guidance established by national energy laboratories, and existing state laws and local regulations.

Instructions for Use

This document is designed to inform the development of individual ordinances or state regulations to guide the development of utility-scale wind energy conversion facilities and is intended to help local governments strike an appropriate balance between the need to develop clean, renewable energy resources and the need to protect the public health, safety and welfare within host communities.

It may not be appropriate to adopt this Model Ordinance precisely as it is written. It is intended to be advisory, and users should not rely upon it as legal advice. Local government officials are urged to seek legal advice from their attorneys before enacting a utility-scale wind energy conversion system ordinance. Local governments must consider how the language in this Model Ordinance may or should be modified to suit local conditions, comprehensive plans, existing land use and zoning provisions.

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Section I: Definitions & Applicability

A. Definitions

The list of terms provided is not exhaustive but defines many of the terms local jurisdictions should consider adding to the definitions section of a wind energy siting ordinance.

Aircraft Detection Lighting System means a sensor-based system designed to detect aircraft as they approach a wind energy conversion facility; this system automatically activates obstruction lights until they are no longer needed.

Ancillary equipment means the transmission lines, substations, access roads, meteorological towers, storage containers, and equipment associated with the generation and storage of electricity by the utility-scale wind energy conversion system (WECS) facility.

Conditional / Special Use Permit means a permit issued by [County/Village/Town] for the siting, construction, and operation of a WECS facility.

Light-mitigating Technology System means aircraft detection lighting system, lighting intensity dimming solution technology, or a comparable solution capable of reducing the impact of nighttime lighting while maintaining night conspicuity sufficient to assist aircraft in identifying and avoiding collision with the facilities.

Meteorological (MET) tower means those towers which are constructed primarily to measure wind speed and direction plus other data relevant to siting and operation of WECS facilities. For purposes of this ordinance, MET towers do not include towers and equipment used by airports or other similar applications or government agencies, to monitor weather conditions.

Nameplate capacity means the designed full-load sustained generating output of an energy facility. Nameplate capacity shall be determined by reference to the sustained output of an energy facility even if components of the energy facility are located on different parcels, whether contiguous or noncontiguous.

Nonparticipating property means real property that is not a participating property.

Nonparticipating residence means a residence that is located on nonparticipating property and that is existing and occupied on the date that an application for a permit to develop the WECS facility is filed with the [County/Village/Town].

Note: An occupied building does not include barns, coops, silos, stables, outbuildings, garages, hangars, storage buildings, machine shops or other similar buildings.

Occupied community building means any one or more of the following buildings that is existing and occupied on the date that the application for a permit to develop the WECS

facility is filed with the [County/Village/Town]: a school, place of worship, day care facility, public library, or community center.

Note: An occupied building does not include barns, coops, silos, stables, outbuildings, garages, hangars, storage buildings, machine shops or other similar buildings.

Participating property means real property that is the subject of a written agreement between a WECS facility owner and the owner of the real property that provides the WECS facility owner an easement, option, lease, or license to use the real property for the purpose of constructing a WECS facility, or ancillary equipment.

Participating residence means a residence that is located on participating property and that is existing and occupied on the date that an application for a permit to develop the WECS facility is filed with the [County/Village/Town].

Shadow Flicker - Occurs when rotating wind turbine blades pass between the sun and an individual's home, casting a periodic shadow that may result in a flickering phenomenon. It cumulatively only occurs for a few hours per year.

Utility-scale wind energy conversion system (WECS) means a system that (i) is connected to the grid on the utility side of the meter ("in front of the meter") (ii) captures and converts wind into electricity, for the purpose of sale or for use in locations other than solely the wind energy facility property.

WECS facility includes, but is not limited to, the following equipment and ancillary equipment to be constructed by an electric provider or independent power producer: wind towers; wind turbines; access roads; distribution, collection, and feeder lines; wires and cables; conduit; footings; foundations; towers; poles; crossarms; guy lines and anchors; substations; circuit breakers and transformers; energy storage facilities; overhead and underground control; communications and radio relay systems and telecommunications equipment; monitoring and recording equipment and facilities; erosion control facilities; utility lines and installations; generation tie lines; ancillary buildings; wind monitoring stations; and accessory equipment and structures.

WECS facility owner means:

- i. a person or entity with a direct ownership interest in a utility-scale wind energy conversion system (WECS) facility regardless of whether the person is involved in acquiring the necessary rights, permits, and approvals or otherwise planning for the construction and operation of the facility, and
- ii. at the time the facility is being developed, a person or entity who is acting as a developer of the facility by acquiring the necessary rights, permits, and approvals or by planning for the construction and operation of the facility, regardless of whether the person will own or operate the facility.

Wind tower includes the wind turbine tower, nacelle, and blades.

B. Applicability

The requirements of this ordinance shall apply to WECS facilities with a nameplate capacity equal to or greater than 50 megawatts (MW) permitted and installed in [County/Village/Town] after the effective date of this ordinance¹.

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

C. Application Approval

Applications for permits shall be approved in accordance with Section [XXX] of [County/Village/Town] ordinances.

D. Timeline for Review and Approval

The [County/Village/Town] 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 [County/Village/Town] shall require a public hearing in accordance with their public participation requirements prior to issuance of a conditional / special use permit. The public hearing should be conducted within 45 days of notice of application completeness. Notice of the hearing shall be published in a newspaper of general circulation in the [County/Village/Town].

The local unit of government with which an application is filed under this subsection shall approve or deny the application within 120 days after receiving the application. The applicant and local unit of government may jointly agree to extend this deadline by up to 120 days.

¹ WECS Nameplate Capacity – Where a state defines the nameplate capacity of utility-scale (large) projects, the state's threshold applies.

Section II: Siting Standards

WECS facilities may be approved as a conditional use / special use in the applicable zoning district² when in compliance with the following standards and requirements:

A. Setbacks³

Local permitting authorities must balance multiple interests while supporting cost-effective development of WECS facilities. Setback requirements are designed to protect public health, safety, and welfare within host communities.

Setbacks are also intended to consider perceived impacts associated with sound and shadow on occupied residences, businesses, etc.

Setbacks are frequently related to the tip height of the wind turbine, meaning taller turbines will inherently have larger setbacks.

The setback requirements in this section may be waived subject to the written consent of the owner of each affected property. Evidence or affidavit of any applicable setback waiver easement agreement shall be provided at the time of application.

Common and Accepted Setback requirements:

Occupied Community Buildings	2.1 x maximum tip height.
Participating Residences	1.1 x maximum tip height
Nonparticipating Residences	2.1 x maximum tip height
Participating Property Lines	Setbacks between participating property lines are commonly waived.
Nonparticipating Property Lines	1.1 x maximum tip height
Public Road Rights-of-way	1.1 x maximum tip height
Overhead communication lines, transmission lines, and distribution lines	1.1 x maximum tip height
Other Considerations:	
State and / or Federal Protected Lands / Parks (e.g., FWS protected areas and State Nature Preserve Protected Lands)	2.1 x maximum tip height to the nearest point on the property line of the fish and wildlife area or protected land. Visual impacts can typically be minimized / mitigated through siting design and visual screening.
Corporate boundaries of any municipality within the county	Setbacks from municipal boundaries should be based on risk to the public and consistent with applicable extraterritorial jurisdiction laws, or 1-mile, whichever is greater.

*Nonparticipating landowners may waive these setback requirements

² Zoning District definitions differ between local jurisdictions, so it is important for each community to assess the right process for permitting wind energy systems across zones.

³ Setbacks should be established by either a physical requirement (e.g., relative distance = 1.1 x tip height) or by sound guidelines but not both since compliance with a sound requirement is also a setback). In ordinances where both are present "the greater of" should be the qualifier [e.g., 2.1 x tip height or 1,500 feet, whichever is greater].

B. Wind Turbine Height

Each wind turbine shall not exceed the height allowed under the Determination of No Hazard for that turbine from the Federal Aviation Administration (FAA) Obstruction Evaluation / Airport Airspace Analysis under 14 CFR Part 77.⁴

Wind turbine heights within individual WECS projects are evaluated by the FAA for impacts to aviation safety and may be limited by the FAA. Blade tip height limits for wind turbines in a WECS facility should not be lower than what the Federal Aviation Administration determines is safe pursuant to Determinations of No Hazard to Air Navigation under 14 CFR Part 77 for turbines within that facility.

C. Shadow Flicker⁵

Shadow flicker shall be limited to 30 hours per year at non-participating residences or neighboring occupied structures.

An applicant may request a waiver for shadow flicker requirements at participating residences.

D. Sound

Adequate setbacks can protect neighboring residences from experiencing nuisance level sound from WECS. Sound limits are most appropriately applied to residences and occupied buildings.

There have been numerous scientific studies conducted around the world on the appropriateness of sound standards to ensure the protection of public health. There is no evidence to support adopting a sound limit that is inconsistent with this overwhelming scientific evidence and those sound standards used in currently operating wind projects.

The estimate for a project's sound emissions should be consistent with the ANSI/ACP 111-1 (2022) Wind Turbine Sound Modeling⁶ standard. This will ensure that a project's sound emission is consistent with proper regulatory metrics (i.e., Leq (average) over 10 min, 1 hour, or nighttime 8-hour period), ensuring that wind turbine placement will comply with local sound level limits.

⁴ [eCFR :: 14 CFR Part 77 -- Safe, Efficient Use, and Preservation of the Navigable Airspace \(FAR Part 77\)](#)

⁵ A common regulatory target for Shadow Flicker is 30 hours per year at homes, which represents less than 0.3 percent of annual daylight hours. The target of 30 hours per year is based on expected or realistic scenarios incorporating cloud cover and operational statistics. This results in an acceptable balance of those wishing to host turbines on their land and their neighbors, and it means homes in proximity to wind turbines will not experience shadow flicker 99.7 percent of the year.

⁶ [ANSI/ACP 111-1-2022 Wind Turbine Sound Modeling | ACP \(cleanpower.org\)](#) - Following the ANSI/ACP 111-1 (2022) Wind Turbine Sound Modeling standard will ensure that wind turbine placement will comply with local sound level limits.

E. Visual

All Wind Turbines shall be painted a non-reflective, non-obtrusive white or gray color as required in Chapter 13 of the FAA's Lighting and Marking Advisory Circular 70/7460-1M or its successor.⁷

The FAA regulates allowable colors for wind turbines to ensure compatibility with aviation safety. Section 13.4. of the FAA rules provide that "Wind turbines should be painted white or light grey, as these colors have been shown to be the most effective method for providing daytime conspicuity (see Figure A-26⁸). Wind turbine manufacturers typically use a European color-matching system that is referred to as the RAL Color Standard. The RAL system uses a four-digit code to identify a specific color of paint, for example, an RAL 9xxx code would represent a color in the white/black range. The preferred white paint color is pure white, RAL 9010, or an equivalent, however most wind turbines currently produced are painted light grey, RAL 7035, which is the darkest acceptable off-white paint allowed. Any shade of white between these two RAL specifications is strongly recommended (see Table 13-1).

Wind Turbine Paint Standard Colors

Color	RAL Number
Pure White (preferred color)	9010
Light Grey (darkest acceptable)	7035

Source: [Advisory Circular 70/7460-1M \(faa.gov\)](#), last updated November 16, 2020. Chapter 13.

F. Lighting

For each WECS project that is considering using an aviation detection lighting system (ADLS), a request must be made to the FAA. The FAA evaluates each request on a turbine-by-turbine basis.⁹ The FAA can deny the ADLS usage on wind farms or certain turbines within a wind farm due to proximity to airports, low-altitude flight routes, military training areas, or other areas of frequent activity.

Host communities should allow developers the flexibility to work through the feasibility of such systems on individual wind farms with the FAA rather than mandating usage since the FAA may find it is not appropriate on certain wind farms or turbines due to aviation safety concerns. Additionally, ADLS refers to a specific light mitigation technology solution. There are companies working on different technologies to mitigate the nighttime lighting impact, such as light dimming technologies. However, the FAA has not yet certified any light mitigation technology other than ADLS, nor have they provided guidance for how these systems would be implemented, if approved.

⁷ [Advisory Circular 70/7460-1M \(faa.gov\)](#), last updated November 16, 2020. Chapters 13 and 14 are specific to lighting and marking of wind turbines.

⁸ [Advisory Circular 70/7460-1M \(faa.gov\)](#), last updated November 16, 2020.

⁹ *Ibid.*

G. Security and Safety Standards¹⁰

Wind turbines and accessory equipment and facilities must comply with the National Electrical Safety Code¹¹ and other applicable standards as outlined by the [County/Village/Town] ordinances.

Fencing should provide security around associated facilities such as an O&M building and substation to prevent unauthorized access, which can help protect equipment and ensure public safety. A security fence must be equipped with a minimum of one gate and a locking mechanism on the primary access side.

Security fences, gates, and warning signs must be maintained in good condition until the wind energy conversion system is decommissioned and removed from the site.

Fencing shall not be required around wind turbines that are secured by a locked turbine tower door.

Section III: Permitting & Environmental Compliance

A. Site Plan Applications

A site plan application shall include the following information:

- A. A project summary, including, to the extent available:
 - i. a general description of the project, including the general location of the project;
 - ii. a description of the applicant, project owner and operator, including their respective business structures; including the names, addresses, and phone numbers of the applicants, owners and operators, and all property owners;
 - iii. total name plate generating capacity of the WECS facility;
 - iv. total number of wind turbines proposed;
 - v. name plate generating capacity of each wind turbine;
 - vi. typical equipment manufacturers of key equipment (e.g., wind turbine);
 - vii. the maximum height of the proposed wind turbines and maximum diameter of the rotor.
- B. A preliminary site plan for the installation of the WECS facility showing the planned location of each wind turbine, anchor bases (if any), primary structures, property lines (including identification of adjoining properties), setback lines, public access roads and turnout locations, substation(s), electrical cabling from the wind turbines to the

¹⁰ Local jurisdictions may have also specific zoning laws and/or building codes that dictate fencing requirements, including height, materials, and setback distances from property lines, which should be taken into consideration for consistency.

¹¹ "National Electric Safety Code" (NESC) is a set of safety standards that set the ground rules and guidelines for practical safeguarding of utility workers and the public during the installation, operation, and maintenance of electric supply, communication lines and associated equipment. Per regulations, a fence of at least 6 ft (with 3-strand barbed wire) or 7ft in height must enclose the electrical components of a wind facility. Common fencing is chain link or wildlife / game fencing where appropriate. Rule 092E of the NESC describes grounding methods applicable to fences at electric supply facilities.

- substation's ancillary equipment, transmission lines, and layout of all structures within the geographical boundaries of any applicable setback.
- C. Letters of consent to construct from all surface property owners on which the WECS facility is located.
 - D. Stormwater assessment including a Stormwater Pollution Prevention Plan to minimize, mitigate, and repair any impacts to site drainage during site preparation and project construction.
 - E. Vegetation management plan (construction and operations).
 - F. A fire response plan and an emergency response plan.
 - G. Decommissioning Plan complying with the requirements of Section [XXX] of this [County/Village/Town] ordinance.
 - H. A summary of the community outreach and education efforts undertaken by the applicant, including a description of any public meetings and / or meetings with elected officials.
 - I. Written certification that the FAA Obstruction Evaluation forms have been submitted to the FAA in accordance with FAA requirements (FAA Form 7460-1, Notice of Proposed Construction or Alteration).
 - J. Any other information required by the [County/Village/Town] as part of its zoning regulations, including all studies, reports, certifications, and approvals demonstrating compliance with the provisions of all applicable federal, state, and local regulations.

B. Special / Conditional Use Permits

Applications for special use or conditional use permits shall be considered and approved in accordance with Section [XXX] of [County/Village/Town] ordinances.

C. Environmental Compliance

An applicant shall notify and consult with relevant local, state, and federal environmental jurisdictions and agencies regarding the proposed project and potential protected resources that may be present before submission of a site plan application.

An applicant shall describe any avoidance, minimization, and/or mitigation measures for protected resources incorporated into the project plan.

Section IV: Decommissioning¹²

A decommissioning plan that is consistent with agreements reached between the applicant and other landowners of participating properties and that ensures the return of all participating properties to a useful condition, similar to the preconstruction condition, including removal of above-surface facilities and infrastructure that have no ongoing purpose, shall be provided by the applicant.

¹² See Attachment for model decommissioning language.

The decommissioning plan shall include, but is not limited to, financial assurance in the form of a bond, a parent company guarantee, or an irrevocable letter of credit, but excluding cash, to be determined by applicant. The amount of the financial assurance shall not be less than the estimated cost of decommissioning the WECS, after deducting salvage or recycling value, as calculated by a third party with expertise in decommissioning, hired by the applicant.

The financial assurance may be posted in increments as follows:

- i. The first posting date shall be on or before the tenth (10th) anniversary of the commercial operations date of the WECS facility.
- ii. Additional posting dates shall occur not less frequently than every five (5) years following the first payment.
- iii. The last posting date shall be on or before the twenty-fifth (25th) anniversary of the commercial operations date of the WECS facility.

Section V: Resources

As state and local jurisdictions consider the recommended framework for siting and permitting WECS facilities outlined in this model ordinance, ACP seeks to provide communities with resources and technical guidance. ACP encourages the review of the following materials:

Code of Federal Regulations, Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace: 14 CFR Part 77 establishes: “(a) The requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures; (b) The standards used to determine obstructions to air navigation, and navigational and communication facilities; (c) The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and (d) The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.”

ANSI/ACP 111-1-2022 Wind Turbine Sound Modeling: This standard provides a method for predicting sound pressure levels based on the ISO 9613-2 standard for propagation of sound outdoors utilizing the apparent wind turbine model-specific sound power level determined in accordance with International Electrotechnical Commission (IEC) 61400-11 for the downwind location.

FAA Advisory Circular [AC 70/7460-1M] Obstruction Marking and Lighting: Chapters 13 and 14 of the FAA Advisory Circular (AC 70/7460-1M) describe the standards for marking and lighting of wind turbines to promote aviation safety. An applicant proposing any type of construction or alteration of a structure that may affect the National Airspace System (NAS) as required under the provisions of 14 CFR Part 77 is required to notify the FAA by completing the **FAA Form 7460-1, Notice of Proposed Construction or Alteration.**

Wind Turbines and Health: Over 20 years of research into the impact of wind turbines on human health indicates that wind turbines – when constructed properly at the permitting authority’s approved setback distances – do not pose a risk to people’s health.

Wind Turbines and Shadow Flicker: Shadow flicker can be minimized with proper planning and siting. The duration of shadow flicker in hours per year can be calculated using software routinely used in wind energy project design. The models incorporate project information such as proposed wind turbine locations, along with homes and other potentially sensitive locations; site topography data; weather data; and wind turbine dimensions (e.g., hub height and rotor diameter). Because developers have techniques to model the potential shadow flicker at neighboring residences, they can often adjust wind turbine locations to reduce the shadow flicker. However, given the spacing requirements between turbines as well as the presence of scattered residences in rural areas, it is difficult to reduce shadow flicker to zero hours at all residences.

Wind Turbines and Lighting: Over the years, the wind industry has encouraged the FAA to take steps to reduce the visual impact of turbine lights on communities while still ensuring visibility for pilots. The FAA has been receptive to many of these suggestions, like generally not requiring every turbine in a wind farm to be lit; requiring simultaneous flashing; allowing aggregation of lighting plans with nearby wind farms to reduce overall lighting impacts; and evaluating technologies to reduce lighting effects. The wind industry remains committed to minimizing community concerns about lighting in ways that are consistent with FAA rules and ensure aviation safety.

Renewable Energy Facility Decommissioning: Before a project is built, developers create a plan for removing equipment and restoring landowners' property to a useful condition similar to preconstruction conditions when the project is no longer operational. Many local municipalities and state governments require decommissioning plans as a permitting condition.

Decommissioned Wind Turbine Blade Management Strategies: Currently, up to 94% of a wind turbine can be recycled. However, the rotor blades are made of composite materials (e.g., Fiber-Reinforced Plastics, mostly fiberglass and carbon fiber) and pose a more significant recycling challenge to the wind industry and the composite materials sector. As Fiber-Reinforced Plastics (FRPs) are complex to recycle, the majority of rotor blades are currently going to either landfills or incineration facilities. As blade waste continues to grow with other composite waste streams, additional and effective alternatives are being developed for End-of-Life (EoL) blade management. The current recycling technology landscape, cost constraints, logistics, and alternative EoL concepts to consider are presented within this whitepaper.

Attachment: Model Decommissioning Language

Section A: DEFINITIONS

- A. "Renewable energy facility" includes:
 - i. Wind power facility
 - ii. Solar power facility
 - iii. Battery storage facility
- B. "Battery storage facility" includes:
 - i. An energy storage facility that uses battery technologies to absorb electricity, store that electricity for a period of time, and then deliver that electricity to the electric grid.
 - ii. battery enclosures and battery systems, and other equipment used to support the operation of battery storage facilities, including underground or aboveground electrical transmission or communications lines, electric transformers, telecommunications equipment, access road(s).
- C. "Wind power facility" includes but is not limited to the following equipment and ancillary equipment to be constructed by an electric provider or independent power producer: wind towers; wind turbines; access roads; distribution, collection, and feeder lines; wires and cables; conduit; footings; foundations; towers; poles; crossarms; guy lines and anchors; substations; circuit breakers and transformers; energy storage facilities; overhead and underground control; communications and radio relay systems and telecommunications equipment; monitoring and recording equipment and facilities; erosion control facilities; utility lines and installations; generation tie lines; ancillary buildings; wind monitoring stations; and accessory equipment and structures.
- D. "Solar power facility" includes, but is not limited to, the following equipment and facilities to be constructed by an electric provider or independent power producer: photovoltaic solar panels; inverters; access roads; distribution, collection, and feeder lines; wires and cables; conduit; footings; foundations; towers; poles; crossarms; guy lines and anchors; substations; circuit breakers and transformers; energy storage facilities; overhead and underground control; communications and radio relay systems and telecommunications equipment; utility lines and installations; generation tie lines; solar monitoring stations; and accessory equipment and structures.
- E. "Grantee" means a person or entity who:
 - i. leases property from a landowner; and
 - ii. owns a renewable energy facility on the property.

Section B: DECOMMISSIONING PLAN

This section applies to all renewable energy facilities that have not filed an application with the authority having jurisdiction to begin construction by XX

- A. LIMITATIONS. Sections A-B shall not apply to—
 - i. Projects that have already obtained permits;

- ii. Operating renewable energy facilities; or
 - iii. Projects that have already begun the permitting process.
- B. GENERAL— A renewable energy facility owner may not install or locate a renewable energy facility unless the project owner submits a decommissioning plan or alternative agreement with the required provisions described in subsection (c) to the applicable permitting authority.
- C. REQUIRED PROVISIONS— Each decommissioning plan or alternative agreement should:
 - i. Provide that the owner of a renewable energy facility shall be responsible for, at its expense, the proper decommissioning of the facility at the end of the operational life of the renewable energy facility.
 - ii. Describe what conditions constitute the end of the operational life of the facility and therefore the trigger need to implement the decommissioning strategy.
 - a. Describe a decommissioning strategy to either:
 - b. repower the energy facility's equipment;
 - c. remove the facility's infrastructure from the landowner's property and return the property to a useful condition, similar to the preconstruction condition, including:
 - (i) remove above-surface project facilities and infrastructure that have no ongoing operational purpose, unless otherwise negotiated with the landowner or host community or required by permit; and
 - (ii) remove underground facilities and infrastructure that have no ongoing operational purpose to a depth of 3 feet below the surface, unless otherwise negotiated with the landowner or host community or required by permit; or
 - (iii) alternatively restore buildings, roads, or any other associated facilities as agreed to by the landowner, including leaving facility infrastructure on site. Any option for alternative agreement should be included in the decommissioning plan.
 - iii. Include a provision on financial assurance, as described in Sec. 0Y.
 - iv. REEVALUATION OF PLAN — Unless otherwise negotiated with the landowner or host community, the renewable energy facility owner and permitting authority shall reevaluate the Plan every 5 years after the first 10 years of operation and adjust the Plan as necessary to account for advancements in technologies and processes for decommissioning, salvaging, or repowering¹³ of renewable energy facilities.

Section C: EVIDENCE OF FINANCIAL ASSURANCE OF FACILITY OWNER.

- A. REQUIRED AGREEMENT PROVISION ON FINANCIAL ASSURANCE. A renewable energy facility decommissioning plan or agreement must provide that the grantee shall

¹³ Repowering refers to the replacement of all or substantially all of the energy facility for the purpose of extending its life. Repowering does not include repairs related to the ongoing operations that do not increase the capacity or energy output of the energy facility.

obtain and deliver to the authority having jurisdiction (e.g., permitting authority or landowner where there is no permitting authority) evidence of financial assurance that conforms to the requirements of this section to secure the performance of the grantee's obligation to remove the grantee's renewable energy facilities as described by Section 0X of this chapter.

- B. **ACCEPTABLE FORMS OF FINANCIAL ASSURANCE.** Acceptable forms of financial assurance include, but are not limited to, one or more of the following instruments—
- i. Surety bond;
 - ii. Letter of credit;
 - iii. Self-guarantee;
 - iv. Parent guarantee;
 - v. Escrow; or
 - vi. Another form of financial assurance reasonably acceptable to the developer.
- C. **TOTAL AMOUNT OF FINANCIAL ASSURANCE REQUIRED.**
- i. **ESTIMATES.** The evidence of financial security in paragraph (b) shall be accompanied by an estimate of the total cost of decommissioning, net of the salvage and resale value of the equipment.
 - ii. **QUALIFIED INDIVIDUAL.** The estimates described in subparagraph (1) of this section shall be calculated by one of the following qualified individuals—
 - a. A third-party, registered professional engineer; or
 - b. Another person with suitable experience in the decommissioning of the relevant renewable energy device, as agreed upon by the project owner and the permit authority or landowner.
 - iii. **AMOUNT OF FINANCIAL ASSURANCE.** The amount of financial assurance required shall be the estimated cost of decommissioning, net of the estimated salvage value and resale value of the renewable energy facility at the time of decommissioning. Financial assurances provided in lease agreements should count towards the total bond amount, where appropriate.
- D. **SCHEDULE.** The required bond or other security shall be posted according to the following payment schedule—
- i. **FIRST POSTING DATE.** The first posting date shall be on or before the tenth (10th) anniversary of the commercial operations date of the renewable energy facility.
 - ii. **INTERMEDIARY POSTING DATES.** Additional posting dates shall occur not less frequently than every five (5) years following the first payment.
 - iii. **LAST POSTING DATE.** The last posting date shall be on or before the twenty-fifth (25th) anniversary of the commercial operations date of the renewable energy facility.
- E. **AMOUNT OF PAYMENTS.** The amount of each bond or other security payment shall be determined between the grantee and the authority having jurisdiction but must be of an amount sufficient to fulfill the timeline requirements outlined in paragraph (d) of this section.

- F. **TRANSFER OF OWNERSHIP.** In the event of a transfer of ownership of a renewable energy facility, the evidence of financial security posted by the transferor shall remain in place and shall not be released until such time as evidence of financial security meeting the requirements of this section is posted by the new owner of the renewable energy facility and deemed acceptable by the authority having jurisdiction.

Section D. TIMING OF DECOMMISSIONING

IN GENERAL — The decommissioning of the energy facility shall be completed by the owner of the facility within 12 months, to the extent practicable, after ending commercial operations or the end of the useful life of the renewable energy facility, as defined as the failure to generate electricity from commercial renewable energy equipment for a period of twenty-four (24) consecutive months, unless otherwise defined in the lease agreement.