

ARTICLE 3 - WIND ENERGY FACILITIES

3-1 General:

3-1.1 Small System Wind Energy Facilities: A Small System Wind Energy Facility is considered to be an accessory use and does not require approval of a Wind Energy Permit Application. However, such a Small System shall comply with the dimensional requirements of this Article plus any other applicable ordinances.

3-1.2 Anemometers or other meteorological towers: A temporary pole or tower may be erected to use an anemometer or other meteorological measuring devices to test the wind conditions at that site and does not require approval of a Wind Energy Permit Application. However, each such temporary pole or tower shall comply with the dimensional requirements of this Article plus any other applicable ordinances. A copy of a FAA determination report as a result of filing the FAA Form 7460-1, Notice of Proposed Construction or Alteration of an Object that may Affect the Navigable Airspace, shall be submitted prior to submission of any building permits for such a temporary pole or tower.

The temporary pole or tower may be any height but it must be setback from all property lines, vacant or occupied dwelling unit, rights-of-way, and access easements by a distance that is equal to or greater than its height. The temporary pole or tower may not have any signs; may not be illuminated, except as required by the FAA or Department of Defense; and must be removed within 2 (two) years of the date that it is erected, unless the Planning Commission grants a 1-year (one-year) extension. In no case shall the original 2 years plus any extensions total more than 5 (five) years.

3-1.3 Wind Energy Permit Application: Before a building permit may be submitted for a Large System Wind Energy Facility or a Utility-scale Wind Energy Facility, a Wind Energy Permit Application must first be approved by the Planning Commission.

3-2 Permit Application information: Changes to the pending application that do not materially alter the initial site plan may be adopted administratively. The application for a Large System or Utility-scale Wind Energy Facility shall contain at least the following information:

3-2.1 Summary: A narrative overview of the project, including the generating capacity of the Wind Energy Facility.

3-2.2 Inventory: A tabulation describing the:

- A. Specific number, types, and height of each wind turbine to be constructed, including their generating capacity.
- B. Dimensions and respective manufacturers.
- C. Appurtenant structures and/or facilities.

3-2.3 Vicinity map: Identification of the property on which the proposed Wind Energy Facility will be located.

3-2.4 Site Plan: A plan showing the:

- A. Planned location of each wind turbine.
- B. All property lines within one mile of the property lines of the proposed site.
- C. Setback lines.
- D. Access road and turnout locations.
- E. Substation(s).
- F. Electrical cabling from the Wind Energy Facility to the substation(s) and from the substation(s) to where the electricity will leave the site.
- G. Ancillary equipment, buildings, and structures, including permanent meteorological towers.
- H. Associated transmission lines.
- I. Conservation Areas, including natural areas protected by law, such as wetlands that meet the definition in the Clean Water Act; shore land areas; water bodies; riparian buffers; populations of endangered or threatened species, or habitat for such species; archaeological sites, cemeteries, and burial grounds; important local historic sites; existing healthy, native forests consisting of at least one acre of contiguous area; individual existing healthy trees that are at least 100 years old; other significant natural features and scenic viewsheds; existing trails or corridors that connect the tract to neighboring areas.

- 54 J. Location of all structures and properties within the geographical boundaries of any applicable
- 55 setback.
- 56 K. A landscaping plan that shows proposed screening and buffering of all buildings and other non-
- 57 tower structures on the site or sites.

58 **3-2.5 Environmental Impact Study:** For Utility-scale Wind Energy Facilities, an Environmental Impact
 59 Study (EIS) shall be submitted that includes review comments from all applicable state and federal
 60 agencies, including at least the:

- 61 A. NC Department of Environment and Natural Resources,
- 62 B. NC Department of Health and Human Services,
- 63 C. NC Department of Transportation,
- 64 D. NC Wildlife Resources Commission,
- 65 E. US Fish and Wildlife Service, and
- 66 F. US Army Corps of Engineers.

67 The EIS shall cover, at a minimum, the potential impacts on the human population (such as audible
 68 and inaudible sound, shadow flicker and blade glint, viewsheds, blade throw, hurricane resistance,
 69 etc.), as well as the animal populations, land, water (including impacts on groundwater resources due
 70 to foundations, pilings, etc.), and air. The study area shall include at least the 2 miles surrounding
 71 the proposed wind turbines.

72 **3-2.6 Ancillary Materials:** Other relevant studies, reports, certifications, and approvals as may be
 73 reasonably requested by Carteret County to ensure compliance with this Ordinance.

74 **3-2.7 Decommissioning Plan:** A description of how the structural and turbine materials will be disposed
 75 of and how the site will be restored, as well as:

- 76 A. Anticipated life of the wind energy facility.
- 77 B. Estimated decommissioning costs (in current dollars), including contingency costs of at least
- 78 10% (ten percent).
- 79 C. Method for ensuring that funds will be available for decommissioning and restoration.
- 80 D. A verifiable means of determining if the decommissioning plan needs to be activated due to
- 81 abandonment, such as a letter from the electric utility stating that it will notify the Planning
- 82 Department within 10 (ten) business days if electricity is not received from the Wind Energy
- 83 Facility for any 30 (thirty) consecutive days.

84 **3-2.8** The signature(s) of the property owner(s) and the facility owner/operator.

85 **3-2.9 Stand-down Plan:** The applicant shall certify that the proposal is for an International Electrical
 86 Congress (IEC) Class S wind turbine that is designed or will be designed to meet the NC Building
 87 Code. A Stand-down Plan for High Wind Conditions shall be included, along with any other
 88 materials needed for the certification.

89 **3-2.10 Reserved**

90 **3-2.11** If any portion of a proposed Large System or Utility-scale wind energy facility is to be located
 91 within 2,000 feet of the right-of-way of any Federally-designated or State-designated Scenic Route
 92 or By-way, the applicant shall describe the proposed measures to be taken to minimize the visual
 93 impact of the proposed facility (including shadow flicker and blade glint) upon a Scenic Route or
 94 By-way.

95 **3-2.12 Air Space Impacts:**

- 96 A. If any portion of a proposal will be more than 200 feet tall, the applicant shall provide a copy of
- 97 a FAA determination as a result of filing the FAA Form 7460-1, Notice of Proposed
- 98 Construction or Alteration of an Object that may Affect the Navigable Airspace.
- 99 B. If any portion of a proposal will be located within 20,000 feet of the runway surface of the
- 100 Michael J. Smith Airport, Bogue Airfield, and/or Atlantic Field, the applicant shall provide a
- 101 copy of a FAA determination as a result of filing the FAA Form 7460-1 plus demonstrate
- 102 compliance with the County's Airport Height Ordinance..
- 103 C. The applicant shall establish to the satisfaction of the Planning Commission that the proposal
- 104 will not adversely impact the restricted air space in Carteret County, particularly as it relates to
- 105 the flight paths to and from MCAS Cherry Point, Bogue Field, Atlantic Field, Bombing Ranges
- 106 PT 9 and BT 11, Seymour Johnson AFB, Camp Lejeune, and/or New River Air Station.
- 107 D. Any application submitted hereunder shall be forwarded to the Commanding Officer, Marine
- 108 Corps Air Station Cherry Point, in order to provide for review and comment concerning any
- 109 possible impacts on the operations and mission of Marine Corps Air Station Cherry Point, and

no application submitted hereunder shall be deemed completed until such time as said review is completed and such comments are received.

E. The applicant shall provide a narrative description of all risks to:

- 1. Civil air navigation and
- 2. Military air navigation routes, military air traffic control areas, military training routes, military special-use air space, military radar or other potentially affected military operations, and shall further include documentation that addresses any potential adverse impact on military operations and readiness as identified by the Department of Defense clearinghouse and any mitigation action agreed to the by the applicant.

3-2.13 Maintenance Plan: The Applicant shall detail the quarterly, storm follow-up, and non-scheduled maintenance actions that will be taken to keep the Wind Energy Facility operating quietly, efficiently, and non-polluting of the land, water, and air, including (but not limited to) the minimization of loud or high-pitched sound, low frequency sound or vibration, blade glint, and fluid leaks.

The Applicant shall conduct preventive maintenance inspections at least once every 5 (five) years and after any wind event defined as a tropical storm or Category 1-5 Hurricane. Each inspection shall look for such things as metal fatigue, nut loosening, and other potential failures that might impact the public health and safety, as well as the items detailed in the Maintenance Plan. Such inspection reports shall be provided to the Planning Director or designee within 30 (thirty) days of the inspection.

3-2.14 Noise Impacts: No Large System or Utility-scale wind energy facility or any generators, equipment, or apparatus shall produce noise above 45 (forty-five) decibels for more than 5 (five) consecutive minutes, as measured at any property line. Each such occurrence shall be a separate violation of this ordinance and the penalties shall be cumulative.

If noise levels exceed 45 (forty-five) decibels for more than 48 (forty-eight) consecutive hours, as measured at any property line, the applicant and/or owner shall shut down the wind energy facility within 1 (one) business day of being informed to do so by the Planning Director or designee. The facility shall remain shutdown until it can be demonstrated to the satisfaction of the Planning Director or designee that the facility can be operated so as to not exceed 45 (forty-five) decibels for more than 5 (five) consecutive minutes, as measured at any property line.

If noise levels exceed 80 (eighty) decibels for more than 24 (twenty-four) consecutive hours, as measured at any property line, the applicant and/or owner shall shut down the wind energy facility within 1 (one) business day of being informed to do so by the Planning Director or designee. The facility shall remain shutdown until it can be demonstrated to the satisfaction of the Planning Director or designee that the facility can be operated so as to not exceed 80 (eighty) decibels for more than 24 (twenty-four) consecutive hours, as measured at any property line.

3-2.15 Visual Impacts: If warranted, as determined by the Planning Director or designee, the applicant shall furnish a visual impact assessment to the Planning Commission, which shall include:

- A. A computer-generated "zone of visibility map" covering at least a one-mile radius from the proposed facility shall be provided to illustrate locations from which the proposed installation may be seen, with and without foliage
- B. Pictorial representations of "before and after" views from key viewpoints inside of the county as may be appropriate and required, including, but not limited to, state highways and other major roads; state and local parks; other public lands; historic districts; preserves and historic sites normally open to the public; and from any other location where the site is visible to a large number of visitors, travelers, or residents.

Guidance will be provided concerning the appropriate key sites. The applicant shall provide a map showing the locations of where the pictures were taken and the distance of each location from the proposed facility.

C. The Applicant shall not install any lighting that exceeds the minimum required by the FAA. Where alternatives to strobe lighting are available from the FAA, strobe lighting shall be the last resort and only if required by the FAA

3-2.16 Impacts on surrounding Communities: If the proposed wind energy facility is within three miles of a municipality or county, written notification of the application shall be provided by the Applicant to the legislative body of each, with copies of each to the Planning Department.

3-2.17 Standards for Planning Commission Decision: The Planning Commission will normally approve an application but it may disapprove an application for any of the following reasons:

- A. Conflict with safety and safety-related codes and requirements.
- B. The use or construction of a wind energy facility that is contrary to an already-stated purpose of a specific zoning or land use designation.
- C. The placement and location of a wind energy facility that would create an unacceptable risk to residents, the public, employees, and agents of the county, or employees of the service provider or other service providers, including Noise Impacts; Visual Impacts; Impacts on surrounding Communities; and/or adverse impacts identified in an Environmental Impact Statement.
- D. The placement and location of a wind energy facility would result in a conflict with, or compromise or change in, the nature or character of the surrounding area.
- E. Conflicts with the provisions of this ordinance.
- F. Failure to submit a complete application as required under this ordinance, including an incomplete or inadequate (as determined by the Planning Commission) Decommissioning Plan, Stand-down Plan, Maintenance Plan, and/or Road Analysis.
- G. Conflicts, as determined by the Planning Commission, with the Military's unrestricted ability to use the Restricted Air Space above Carteret County, including no flight hazards and/or use limitations.

In addition, the Planning Commission may consider whether construction or operation of the proposed wind energy facility would encroach upon or would otherwise have a significant adverse impact on the mission, training, or operations of any major military installation or branch of military in North Carolina and result in a detriment to continued military presence in the State. In its evaluation, the Planning Commission may consider whether the proposed wind energy facility would cause interference with air navigation routes, air traffic control areas, and military training routes.

3-2.18 Planning Commission Decision: The approval by the Planning Commission shall be valid for a period of 2 (two) years. Prior to the expiration of such approval, the Owner or Agent of the Wind Energy Facility may submit an approval extension application for up to an additional 2 (two) years.

Such approval extension application shall be accompanied by the appropriate fees and a letter explaining the reasons that would justify an approval extension, rather than allowing the approval to lapse. The Planning Commission may not approve more than 2 (two) extensions.

3-3 Dimensional Requirements: To provide for at least minimal operational safety for persons and property located outside of a wind farm, all wind energy facilities shall comply with the minimums and maximums contained in the following tabulation:

Type of Wind Energy Facility	Minimum Wind Turbine Setback from any Property Line, vacant or occupied dwelling unit, Public or Private r-o-w, and/or Access Easement	Maximum Wind Turbine Height*
Small System (up to 25 kW) Attached to a house	None	60 feet
Small System (up to 25 kW) Not attached to a house	1 foot for each foot of height from any property line and 1 foot for each foot of height from any vacant or occupied dwelling unit on the same property but If the Planning Director or designee determines there will be no significant impact on abutting properties or those across a stream, lake, or other body of water, no such setback is required from the waterward property line for a turbine placed in a body of water or on a dock or pier.	75 feet
Large System (more than 25 kW and less than 1,000 kW)	1,300 feet	199 feet

<p>Utility-scale (1,000 kW or more)</p>	<p>6 feet for each foot of height</p>	<p>550 feet</p>
<p>* Height is measured from the lowest adjacent grade to the highest point of the structure, including any attachments, such as a lightning protection device or a turbine rotor or tip of the turbine blade when it reaches its highest elevation.</p>		

200 Such minimum setbacks for a wind energy facility shall be measured from its outermost extension (whether
 201 blade tip, nacelle/turbine housing, or tower/pole edge) that is nearest the subject property line, vacant or
 202 occupied dwelling unit, public or private r-o-w, and access easement. To measure maximum height, see the
 203 Definitions.

204 No portion of any wind turbine blade shall be closer than 25 feet to any portion of the ground that
 205 surrounds any wind energy facility.

206 **3-4 Fees:** The Applicant shall pay to the County a fee as set forth in the County’s Fee Schedule. The Planning
 207 Director and/or Planning Commission reserve the right to obtain engineering or other professional services
 208 to aid it in the review of any submitted application. The applicant shall reimburse Carteret County for the
 209 cost thereof prior to receiving the decision of the Planning Commission on the application.

210 **3-5 Installation and Design.**

211 **3-5.1 Power Collection:** The electrical connection system from the wind turbines to a collection point or
 212 substation shall, to the maximum extent possible, be placed underground. The power from that
 213 collection point or substation may use overhead transmission lines, if approved by the Planning
 214 Director or designee.

215 **3-5.2 Road Analysis:** The applicant shall reimburse the NC DOT and/or County (as appropriate) for any
 216 and all repairs and reconstruction to roads that are necessary due to the construction or
 217 decommissioning of the Large System or Utility-scale Wind Energy Facility. A qualified
 218 independent third party or other qualified person, agreed to by the NC DOT and/or County (as
 219 appropriate) and the applicant, shall be hired to pre-inspect the roadways to be used during
 220 construction and/or decommissioning. This third party shall be hired to evaluate, document, and rate
 221 the roads condition prior to construction or decommissioning of the Large System or Utility-scale
 222 Wind Energy Facility, and again 30 days after the Wind Energy Facility is completed or removed.

223 A. Any road damage during construction that is done by the applicant and/or one or more of its
 224 contractors or subcontractors that is identified by this third party shall be repaired or
 225 reconstructed to the satisfaction of the NC DOT and/or County (as appropriate) at the applicant’s
 226 expense prior to the final inspection. In addition, the applicant shall pay for all costs related to
 227 work of this third party pre-inspection prior to receipt of the final inspection.

228 B. The surety for removal of a decommissioned wind energy facility shall not be released until the
 229 Planning Director or designee is satisfied that any road damage that is identified by this third
 230 party during and after decommissioning that is done by the applicant and/or one or more of its
 231 contractors or subcontractors has been repaired or reconstructed to the satisfaction of the NC
 232 DOT and/or County (as appropriate) at the applicant’s expense. In addition, the applicant shall
 233 pay for all costs related to work of this third party's inspection prior to receipt of the release of
 234 the surety.

235 **3-5.3 The Large System or Utility-scale Wind Energy Facility shall:**

236 A. Be a non-obtrusive color (such as light blue, off-white, or light gray) that blends with the sky, as
 237 determined by the Planning Director or designee.

238 B. Not be artificially lighted, except to the extent required by the Federal Aviation Administration
 239 or other applicable authority that regulates air safety.

240 C. Not contain any signs or other advertising (including flags, streamers or decorative items or any
 241 identification of the turbine manufacturer, facility owner and operator). This does not include
 242 any identification plaques that might be required by the electric utility or governmental agency.

243 D. Be sited and operated so as to not interfere with television, internet service, telephone (including
 244 cellular and digital), microwave, satellite (dish), navigational, or radio reception in neighboring
 245 areas. The applicant and/or operator of the facility shall be responsible for the full cost of any
 246 remediation necessary to provide equivalent alternate service or correct any problems; including
 247 relocation or removal of the facility caused or exacerbated by the operation of such equipment
 248 and any and all related transmission lines, transformers, and other components related thereto.

249 E. Have a leak containment system for oil, hydraulic fluids, and other non-solids that is certified by
 250 an expert (such as an engineer, turbine manufacturer, etc.) acceptable to the Planning Director or

designee that all such fluids will be captured before they reach the ground. The applicant shall pay the cost of the expert.

3-6 Minimization of Shadow Flicker and Blade Glint Impacts by a Large System or Utility-scale Wind Energy Facility.

3-6.1 The applicant shall provide a shadow flicker and blade glint report for each proposed wind energy facility. The report shall:

- A. Evaluate the worst case scenarios of wind constancy, sunshine constancy, and wind directions and speeds.
- B. Map and describe the zones where shadow flicker and blade glint will likely be present within the project boundary and a one-mile radius beyond the project boundary.
- C. Identify existing residences and the locations of their windows, locations of other structures, wind speeds and directions, and existing vegetation and roadways.
- D. Calculate the locations of shadow flicker caused by the proposed project and the expected durations of the flicker at these locations, including outdoor viewsheds.
- E. Calculate the total number of hours per year of flicker at all locations, including the outdoor viewshed.
- F. Identify problem zones within a one-mile radius where shadow flicker will interfere with existing or future residences and roadways and describe proposed measures to mitigate these problems.

3-6.2 Based upon the findings of the report, the wind energy facility shall be designed so that shadow flicker or blade glint will not fall on or in any roadway or occupied property, unless approved by the Planning Commission.

- A. Shadow flicker or blade glint that falls on a portion of an occupied property is acceptable only under the following circumstances:
 - 1. The flicker or glint does not exceed 120 seconds per day for 7 consecutive days, with a 20-hour maximum per year and
 - 2. The flicker or glint falls more than 100 feet from an existing residence or business property.
- B. Shadow flicker or blade glint that falls on a roadway is acceptable only under the following circumstances:
 - 1. The traffic volumes are less than 500 vehicles per day on the roadway and
 - 2. The flicker or glint shall not fall onto an intersection of public roads.

If shadow flicker or blade glint exceeds any of the conditions listed in this Section, the source wind energy facility shall be shut down until the flicker or glint problem is remedied. Each such occurrence shall be a separate violation of this ordinance and the penalties shall be cumulative.

3-7 Decommissioning or Abandonment: If the chief building official condemns any portion of a Large System or Utility-scale Wind Energy Facility or if no electricity is generated for 3 consecutive months, the Wind Energy Facility owner and/or property owner shall have 3 months to remedy the safety issues or complete the decommissioning of the Wind Energy Facility, according to the approved plan.

3-7.1 The Planning Commission may grant extensions of time for repair and/or maintenance, for good cause, such as the need to back-order parts that are not currently available from the manufacturer or supplier or the need to repair a Large System or Utility-scale Wind Energy Facility damaged by a hurricane.

3-7.2 Decommissioning shall include the complete removal of wind turbines, buildings, cabling, electrical components, roads, and any other associated facilities and/or structures, including below-ground items such as foundations and power lines.

3-7.3 Disturbed earth shall be graded and re-seeded, unless the landowner requests in writing that the access roads or other land surface areas not be restored.

3-8 Reserved

3-9 Security of Large System or Utility-scale Wind Energy Facilities: All wind energy facilities shall be:

- 3-9.1. Located, fenced, or otherwise secured so as to prevent unauthorized access.
- 3-9.2. Made inaccessible to individuals and constructed or shielded in such a manner that they cannot be climbed or collided with.
- 3-9.3. Installed in such a manner that they are readily accessible only to persons authorized to operate or service them.

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3-10 Reservation of Authority to Inspect Large System or Utility-scale Wind Energy Facilities: In order to verify that the holder of a permit for a wind energy facility and any and all lessees, renters, and/or licensees of it, have placed and constructed such facilities in accordance with all applicable technical, safety, fire, building, and zoning codes, laws, ordinances and regulations and other applicable requirements, the county may inspect all facets of said permit holder's, renter's, lessee's or licensee's placement, construction, modification, and maintenance of such facilities, including all towers, buildings, and other structures constructed or located on the site.