

XYZ County

Draft of Local Law No. 1 of the year 2016 {revision 12/28/16}

[Note: Consequential changes from prior recent versions are in green.]

Be it enacted by the County Commissioners of XYZ County as follows:

{Note: this sample law uses North Carolina as the state where XYZ County is located. You have permission to copy and past any parts that you and your attorney find are helpful. Please start by reading the last two pages of Notes — which are not part of the proposed law.}

Section 1. Local Law Repealed

Local No. __ of the year _____, is hereby repealed in its entirety and replaced with this Local Law.

{Note: this would be applicable if there's an existing wind law that this ordinance will replace.}

Section 2. Title

This Local Law may be cited as the "Wind Energy Facilities" law of XYZ County, North Carolina.

Section 3. Purpose

The County Commissioners of XYZ County adopt this Local Law to regulate the placement of industrial wind energy facilities to protect the public health, safety and welfare of its citizens and visitors; to minimize the adverse impacts on the County's character and economy; to minimize negative impacts on the unique scenic resources including, but not limited to, the SLR River shoreline corridor and adjacent lands and waterways; to minimize the adverse impacts on property values of nearby citizens; to minimize the adverse impacts on the County's farming communities; and to minimize the adverse impacts on the County's environment and ecosystems.

Section 4. Authority

The County Commissioners of XYZ County, North Carolina enact this ordinance establishing comprehensive regulations for Wind Energy Facilities in XYZ County, providing for the administration, enforcement, and amendment thereof, in accordance with the provisions of:

- 4-1 The applicable parts of the North Carolina State Constitution
- 4-2 The applicable parts of the North Carolina General Statutes (esp. §14 - Criminal Law; §62 - Public Utilities; §105 - Taxation; §106 - Agriculture; §113 - Conservation and Development; §113A - Pollution Control and Environment; §130A - Public Health; §150B - Administrative Procedure; §153A - Counties; §159 - Local Government Finance; §160A - Cities and Towns).
- 4-3 The applicable parts of North Carolina State Building Codes.
- 4-4 North Carolina State Session Law 2007-397, Senate Bill 3.
- 4-5 North Carolina State Session Law 2013-206, House Bill 433.
- 4-6 North Carolina State Session Law 2013-51, House Bill 484.
- 4-7 US DoD Instruction: Air Installation Compatible Use Zones (AICUZ).
- 4-8 NC Dept of Insurance: Fire Fighter Safety & Renewable Energy Systems Module.

Section 5. Findings

The County Commissioners of XYZ County find and declare that:

- 5-1 The North Carolina State General Statutes (e.g. §153A-340, §160A-381) give local legislators the power to write zoning and regulation ordinances “for the purpose of promoting the health, safety, or general welfare” of their community.
- 5-2 While wind energy is a semi-renewable energy resource of electricity generation, and under some circumstances it may reduce the use of nonrenewable energy sources, the possible benefits must be balanced against potential negative impacts to local citizens, local economy, local ecosystems, and regional military facilities.
- 5-3 Regulation of the siting and installation of wind turbines is necessary for protecting the health, safety, and well-being of neighboring property owners, the general public, the local economy and local ecosystems.
- 5-4 Several independent legal and economic experts have concluded that there can be serious legal and economic downsides for landowners entering into the secretive, complicated and one-sided lease/easement contracts written by industrial wind energy developers.
- 5-5 Large-scale multiple-turbine industrial wind energy facilities represent significant potential negative aesthetic impacts because of their enormous size, lighting, and shadow flicker effects.
- 5-6 Installation of large-scale multiple-turbine industrial wind energy facilities can create drainage problems through erosion and lack of sediment control of facility and access road sites, and harm farmlands through construction methods utilized.
- 5-7 Construction of industrial wind energy facilities can create traffic problems and damage local roads.
- 5-8 There is significant evidence from independent appraisers that industrial wind energy facilities will likely reduce property values of nearby property owners. Said property value reductions will reduce the County’s tax base, resulting in a tax rate increase on all County property owners.
- 5-9 A large scale industrial wind energy facility may be a significant source of noise and vibration, and can have negative health impacts on residents in neighboring properties, particularly in areas with low ambient noise levels. According to various medical experts (e.g. the World Health Organization), the infrasound component of such noise can be the most problematic.
- 5-10 In certain circumstances, industrial wind energy facilities can cause electromagnetic interference with some types of communications.
- 5-11 Independent experts (e.g. chiropterologists) have concluded that bats killed by industrial wind energy turbines can result in an appreciable reduction in regional agricultural yields. Estimates have been done for every US county, and these experts have projected that this could adversely affect our local community’s economy, by over a million dollars a year.
- 5-12 Independent experts (e.g. ornithologists) have concluded that turbines kill large quantities of birds. Especially troublesome are the raptors that are destroyed. XYZ County is located on a migration route for many species of birds, and is habitat for many species, both year round and seasonal.
- 5-13 Independent experts have concluded that industrial turbines can have a variety of adverse health effects on other wildlife, livestock and domestic animals.
- 5-14 XYZ County has many scenic view sheds, and some of these would be negatively impacted by industrial wind energy facilities.

- 5-15 XYZ County has adopted a revised Local Waterfront Revitalization Plan which includes the establishment of a Scenic Overlay District in recognition of the importance of the scenic assets of the _____ River to the community.
- 5-16 Significant public and private dollars have been invested in infrastructure within XYZ County to enhance and promote the region's principal industry, tourism. Several studies by independent experts have concluded that nearby industrial wind energy facilities can have a major negative economic impact on tourism sensitive communities.
- 5-17 XYZ County and its citizens desire to maintain the pastoral, rural nature of this region. An industrial wind energy facility is in conflict with the culture and character of this community.
- 5-18 Due to the unusually broad array of potentially problematic Findings (and lack of scientifically proven net benefits), the Precautionary Principle dictates that the County be particularly conservative and cautionary in its regulation of industrial wind energy.
- 5-19 XYZ County has regulated wind energy facilities for the past decade through local laws. This Local Law represents an updating of said regulations.
- 5-20 In formulation of this Local Law, many studies have been reviewed — and those written by independent experts were given the greatest consideration. (See WiseEnergy.org for good examples of such reports.) Many wind energy ordinances through the US have been analyzed. Experiences of other communities with industrial wind energy have been studied. An *ad hoc* Committee was appointed to make recommendations regarding industrial wind energy regulation. Some of its conclusions were incorporated into this Local Law.

Section 6. Permit Required

Large and small wind energy facilities (as well as meteorological measuring devices) shall be permitted within XYZ County only in an Agricultural District designated as such. Such facilities shall be subject to the requirements and permitting process of this Local Law, in addition to other applicable local, State and Federal laws.

This Local Law shall apply to all areas of XYZ County.

Section 7. Definitions

As used in this chapter, the following terms shall have the meanings indicated. Words not defined in this Local Law shall be given their ordinary and common meaning:

Accessory building: A building that is located on the Wind Energy Facility (WEF) property.

Accessory Equipment: Any equipment serving or being used in conjunction with a LWEF. The term includes utility or transmission equipment, power supplies, generators, batteries, equipment buildings, and storage sheds, shelters or similar structures.

Administrative Approval: Approval that the Planning Board is authorized to grant after Administrative Review.

Blade Glint: The intermittent reflection of the sun off the surface of the blades of one or more wind turbines.

Board of Appeals: The Board of Appeals is comprised of the members of the Zoning Board of Appeals that is established by the Local Zoning Law.

Completed Application: An application that contains all information and/or data required and requested, to enable an informed decision to be made with respect to that application.

Conservation Area: Such areas include natural areas protected by law, such as wetlands that meet the definition in the Clean Water Act 33 USC Sec. 1251 et seq.; shoreland areas; water bodies; riparian buffers; populations of endangered or threatened species, or habitat for such species; archaeological sites, cemeteries, and burial grounds; important historic sites; other significant natural features and scenic viewsheds; and existing trails or corridors that connect the tract to neighboring areas.

dba: A-weighted decibels, abbreviated dBA [or dBa, or dB(a)], is an expression of the relative loudness of sounds in air as perceived by the human ear. With A-weighting, the decibel levels of low frequencies are reduced compared to the middle and high frequencies (A-weighted energy equivalent sound level). Unless specified otherwise, in this law dBA means LAeq (energy equivalent sound level).

Electrical Transmission Tower: An electrical transmission structure used to support high voltage overhead power lines. The term shall not include any utility pole.

FAA: The Federal Aviation Administration or successor agency.

Infrasound: Low frequency sounds that are not ordinarily hearable by humans. All sounds are energy waves, so humans can be affected by infrasound, despite not being aware of its presence. The World Health Organization has concluded that health effects due to low frequency components in noise are estimated to be more severe than for community noise in general.

LWEF (Large Wind Energy Facility): A WEF that has a rated capacity of 100 kW or more.

Maintenance: The cleaning, painting, repair, or replacement of defective parts (including plumbing, electrical, or mechanical work that might require a building permit) in a manner that does not alter the basic design or composition of a structure, such as a wind turbine.

Meteorological Measuring Device: An instrument, such as an anemometer, that measures wind speed. This is often on a tower, typically located at hub-height of the anticipated turbines.

Modification or Modify: Any change, addition, removal, swap-out, exchange, and the like that does not qualify as "Repairs and/or Maintenance" as defined herein is a Modification. Also included is any change, addition, swap-out, exchange, and the like that requires or results in changes and/or upgrades to the structural integrity of a turbine.

Necessary: What is technologically required for the equipment to function as designed by the manufacturer. Anything less will restrict or inhibit the provision of service as intended and described in the Application. Necessary does not mean what may be desired or preferred technically.

Ordinary Maintenance: Actions that ensure that the WEF is kept in good operating condition. Ordinary Maintenance includes inspections, testing and modifications that maintain functional capacity and structural integrity. Ordinary Maintenance does not include Modifications.

Person: An individual, trustee, executor, receiver, other fiduciary, corporation, firm, partnership, association, organization, club, etc. acting as an entity.

Repair: The replacement of existing work with the same kind of material used in the existing work, not including additional work that would change the structural safety of the structure or that would affect or change required existing facilities, a vital element of an elevator, plumbing, gas piping, wiring, or heating installations, or that would be in violation of a provision of law or this Local Law. The term "Repair" or "Repairs" shall not apply to any change in construction.

Residential Zoning Districts: The RA, R-35, *{fill these in}* ... zoning districts.

Shadow Flicker: The visual effect that results when the blades of an operating wind energy turbine pass between the sun and an observer and cast an observable, moving shadow on a person or property in the vicinity.

State: The State of North Carolina.

SWEF (Small Wind Energy Facility): A WEF that has a rated capacity of less than 100 kW. Such a facility is used primarily for on-site consumption, is an accessory use, and consists of no more than one wind turbine and any associated tower, control and/or conversion electronics.

Temporary: Something intended to exist or does exist for fewer than 180 days, except for an anemometer or other meteorological measuring device that is used to test the wind conditions, which are considered temporary when it exists for two years or less.

Utility Pole: A structure owned and/or operated by a public utility, municipality, electric membership corporation, or rural electric cooperative that is designed specifically for and used to carry lines, cables, or wires for telephone, cable television, or electricity, or to provide lighting.

WEF (Wind Energy Facility): An electricity-generating facility, whose primary purpose is to supply electricity. This consists of one or more wind turbines and other accessory structures and buildings, including substations, meteorological towers, electrical infrastructure, transmission lines, and other appurtenant structures and/or facilities.

Wind Energy: Wind turbines convert the kinetic energy of moving air (wind) into mechanical power. Note that the term "wind energy" is more technically correct than saying "wind power."

Wind Farm: A marketing term for a LWEF.

Windmill: A marketing term for a wind turbine.

Wind Turbine: A wind energy conversion system that converts wind energy into electricity through the use of a wind turbine generator. Such a system might include a nacelle, rotor, tower, pad transformer, and other appurtenant structures and/or facilities.

Wind Turbine Height: The distance 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.

Section 8. WEF Permit Requirements

8-1 General:

8-1.1 **Anemometers or other meteorological towers:** Temporary towers may be erected to use a meteorological measuring device to test the wind conditions on the proposed LWEF site. Such towers do not require approval of a WEF Permit. However, each such temporary pole or tower shall comply with the dimensional requirements stipulated by the County Planning Board. 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 tower.

The temporary pole or tower may be any approved 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 greater than 1.5 times 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 completely removed within two (2) years of the date that it is erected, unless the Planning Board grants a single one (1) year extension.

8-1.2 **Wind Energy Permit Application:** Before a building permit may be submitted for a WEF, a Wind Energy Permit Application must first be approved by the Planning Board.

8-2 WEF Permit Application: Throughout the permit process, the applicant shall promptly notify the Planning Board of any changes to the information contained in the permit application. Changes that do not materially alter the initial site plan may be administratively accepted. The application for a WEF shall be an electronic digital filing that contains at least the following:

8-2.1 **Summary:** A narrative overview of the WEF, including its generating capacity.

8-2.2 **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.

8-2.3 **Vicinity map:** Identification of the property on which the proposed WEF will be located.

8-2.4 **LWEF Site Plan:** A plan showing the:

- A. Planned location of each wind turbine.
- B. All property lines within two (2) miles of the property lines of the proposed site.
- C. Each turbine's setback distance from the closest LWEF boundary.
- D. Access road and turnout locations.
- E. Substation(s) and ancillary equipment, buildings, and structures, including permanent meteorological towers
- F. Electrical cabling from the WEF to the substation(s) and from the substation(s) to where the electricity will leave the site.
- G. Associated transmission lines.
- H. Conservation Areas, including natural areas protected by law, such as wetlands that meet the definition in the Clean Water Act; shoreland areas; water bodies; riparian buffers; populations of endangered or threatened species (Federal or State), or habitat for such species; flyways; 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 view sheds; existing trails or corridors that connect the tract to neighboring areas.
- I. Location of all structures and properties within the geographical boundaries of any applicable setback.

J. A landscaping plan that shows proposed screening and buffering of all buildings and other non-turbine structures on the site or sites.

- 8-2.5 **LWEF Misc:** The applicant shall provide the following information to the Planning Board:
- A. Certification that the proposal is for an International Electrical Congress (IEC) Class S wind turbine that is designed to meet all NC Building Codes.
 - B. A Stand-down Plan for high wind conditions.
 - C. Signed copies of all **original** leases/easements and agreements for this LWEF (**not memorandums**).
 - D. Any other materials needed to satisfy the requirements of this permit.
- 8-2.6 **LWEF Economic Impact Study:** The County will hire independent experts (paid for from the Escrow Account: see ¶ 8-4) who will do a thorough, conservative assessment of the LWEF's net economic impact on the community. This will include possible tourism reduction, reduced agricultural yields due to bat takings, property devaluations (and the commensurate loss in tax base), cost to community due to adverse health effects, higher cost of electricity, etc. This will be compared to any guaranteed incomes from the LWEF.
- 8-2.7 **LWEF Environmental Impact Study:** An Environmental Impact Study (EIS) shall be conducted that includes review comments from citizens in the County, independent experts, as well as all applicable State and Federal agencies, including (as a minimum) the:
- A. NC Department of Environmental Quality,
 - B. NC Department of Health and Human Services,
 - C. NC Department of Transportation,
 - D. US Fish and Wildlife Service, *and*
 - E. US Army Corps of Engineers.

As a minimum the EIS shall include the potential impacts on: (i) humans (such as audible and inaudible sounds, vibrations, EMFs, shadow flicker, blade glint, ice throw, component liberation due to major storms, etc.), (ii) wildlife, livestock and domestic animal populations, including migratory flyways and corridors (same concerns as with humans), (iii) land and vegetation (such as agricultural effects), (iv) wetlands, water bodies, flowing water sources and groundwater (including aquifer impacts due to turbine foundations, etc.), and (v) air (such as changes in humidity). The study area shall include the proposed LWEF, as well as the area at least two (2) miles surrounding the proposed LWEF.

All costs and expenses incurred related to the Environmental tests for the LWEF shall be paid from the Escrow Account (see ¶ 8-4). The County shall use the Escrow Account funds to hire independent qualified experts, as needed, to do the following:

1. Provide the location and full description of any of the following: open drainage courses, streams, vernal pools, wetlands, and other important natural areas and site features, including, but not limited to, floodplains, deer wintering areas, Essential Wildlife Habitats, Significant Wildlife Habitats, livestock, Scenic or Special Resources, habitat of rare and endangered plants and animals, natural communities of endangered species (Federal or State), unique natural areas, sand and gravel aquifers, wells, and historic and/or archaeological resources.
2. The Applicant must provide a written report from all appropriate State and Federal agencies detailing their evaluation of the proposed LWEF.
3. The Applicant must demonstrate, to the satisfaction of the County, that the proposed LWEF will not have undue hydro-geological consequences (e.g. with surface or subterranean water resources, and storm water runoff), or adverse effects on geological stability, rare, threatened, or endangered wildlife, Significant Wildlife Habitat, Essential Wildlife Habitat, Raptor Habitat, livestock, threatened or endangered plants, and rare or exemplary natural plant communities and ecosystems.

4. The Applicant must provide a cumulative-impact assessment of their LWEF in the context of any other LWEFs within twenty-five (25) miles, including migratory bird, bat and large mammal corridors, and demonstrate that the LWEF is not located in an area that will result in degradation of important wildlife corridors or flyways.
5. Pre-construction and post-construction field studies shall be conducted using the most advanced techniques available. If the pre-construction field studies demonstrate significant adverse effect to birds, bats, game animals, water resources, habitat fragmentation or other ecosystem degradation, the LWEF Applicant shall propose a remediation plan, subject to the County's approval. The Applicant accepts that some environmental impacts cannot be satisfactorily resolved, and that such situations will be factored into the County's decision regarding the net benefits of the LWEF.
6. In determining the nature and effectiveness of such remediation plans, the County will be guided by inputs of its citizens, its own consultants, the appropriate State & Federal agencies, and applicable State and Federal laws and regulations. The LWEF Applicant will be responsible for the full cost of implementing any approved remediation plan, under the supervision of the County and its designated agents.
7. After implementation of any remediation plan, the County will review the situation to determine its effectiveness. Should the County find the remediation efforts inadequate, the LWEF Applicant will be given sixty (60) days from that finding, to resolve the deficiencies. In the absence of a successful resolution, the County (at its sole discretion) shall have the right to deny the LWEF Permit.
8. A computer-generated "zone of visibility map" (covering at least a one [1] mile radius from the proposed LWEF) shall be created to illustrate locations from which the proposed installation may be seen, with and without foliage.

8-2.8 **WEF Air Space Impacts:**

- A. For all portions of the WEF more than 200 feet tall, the applicant shall provide a copy of a FAA determination 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."
- B. If any portion of a LWEF will be located within five (5) miles of any civilian or military airport runway, **or heliport**, the applicant shall demonstrate compliance with all local County, State and Federal airport related laws.
- C. The applicant shall establish to the satisfaction of the Planning Board that the LWEF will not adversely impact the restricted air space in the area, particularly as it relates to the flight paths to and from *.
- D. The applicant shall forward this application to the Commanding Officer, *, in order to provide for review and comment concerning any possible impacts on the operations and mission of *. These comments are separate from whatever is in the DOD Clearinghouse documents. This application not be deemed completed until such time as said review is completed and written comments are received.
{ Identify all military bases within 150 miles of the WEF that might be impacted.}*
- E. The applicant shall provide a narrative description of all risks to:
 1. Civil air navigation (including civilian radar).
 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 DOD Clearinghouse and any remediation action agreed to the by the applicant.
 3. NEXRAD weather radar systems.
 4. Hot Air Balloon rides available to the public within twenty (20) miles of the WEF.

- 8-2.9 **Noise Impacts:** Applicant will provide a post-construction noise monitoring plan which shall, at a minimum, provide verification from a qualified party that at the WEF boundaries and at proximate residences, WEF noise does not exceed 35 dBA for more than five (5) consecutive minutes during a representative range of operating and atmospheric conditions. Instrumentation to verify this shall meet ANSI or IEC Type 1 standards, and measurement procedures shall comply with relevant portions of ANSI S12.9, Part 3. Each report will include the SCADA/ Power output data at the time of the testing.
- 8-2.10 **Visual Impacts:** The applicant shall furnish a visual impact assessment to the Planning Board, which shall include:
- A. Pictorial representations of "before and after" views from 360 degree viewpoints within two (2) miles of the proposed WEF boundaries, including a drone perspective from the WEF. These will include, but not be limited to, major roads; the SLR River; State and local parks; other public lands; historic districts; preserves and historic sites. The Planning Board will provide guidance 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 WEF.
 - B. If any portion of a proposed WEF will be located within one (1) mile of the right-of-way of a Federal or State-designated Scenic Route/By-way, the applicant shall describe the proposed measures to be taken to minimize the visual impact of the proposed WEF (including shadow flicker and blade glint) upon a Scenic Route/By-way.
 - C. The Applicant shall not install any lighting that exceeds the minimum required by the FAA. If approved by the FAA, on-demand lighting (AVWS) is required.
- 8-2.11 **LWEF Impacts on Other Municipalities:** If the proposed WEF is within two (2) miles of the Village of XYZ, or the hamlet of ABC, the Applicant shall provide written notification of this application to those municipalities.
- 8-2.12 **Maintenance Plan:** The Applicant shall detail the triennial, storm follow-up, and other actions that will be taken to keep the WEF operating quietly, efficiently, and not polluting land, water, or air. This will include (but not limited to) the minimization of: audible sounds, infrasound, vibrations, blade glint, and fluid leaks. The Applicant shall conduct preventive maintenance inspections at least once every year, and after any wind event defined as a tropical storm or Category 1 (or higher) 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. Such inspection reports shall be provided to the Planning Board within thirty (30) days of the inspection.
- 8-2.13 **Decommissioning Plan:** A description of how the structural and turbine materials will be disposed of, how the site will be restored, as well as:
- A. Anticipated life of the WEF.
 - B. Estimated decommissioning costs including contingency costs of at least 20% (in current dollars), as provided by an appropriately experienced licensed engineer.
 - C. A verifiable means of determining if the decommissioning plan needs to be activated due to cessation of use, such as a letter from the electric utility stating that it will notify the Planning Department within ten (10) business days if electricity is not received from any turbine within the WEF for any thirty (30) consecutive days.
 - D. Method for ensuring that funds will be available for decommissioning and restoration as set forth in ¶ 9-7.
- 8-2.14 **Ancillary Materials:** Other relevant studies, reports, certifications, and approvals as may be reasonably requested by the County to ensure compliance with this Local Law, or to protect the health, safety and well-being of the County's citizens, or local ecosystems. The inputs of local citizens will be solicited in at least one (1) public hearing on this application.

8-2.15 **Testament:** The Applicant will sign a document that Applicant (and successive assigns) agree to all the provisions of this Local Law, without reservation or qualification.

8-2.16 **Planning Board Decision:** The approval by the Planning Board shall be valid for a period of two (2) years. Prior to the expiration of such approval, the Owner of the WEF may submit one (1) approval extension application for up to an additional two (2) years. Such approval extension application shall be accompanied by a second application fee (§ 8-10), as well as a letter explaining the reasons that would justify an approval extension.

8-3 WEF Dimensional Requirements:

To provide for at least minimal operational safety for persons and property located outside of a WEF, all WEFs shall comply with the minimums and maximums contained in the following table:

Type of Wind Energy Facility	Minimum Wind Turbine Setback from any Property Line, Public or Private Right of Way, and/or Access Easement*	Maximum Wind Turbine Height**
SWEF (up to 100 kW)	1.5 feet for each foot of height from any property line and any vacant or occupied dwelling unit on the same property. If the Planning Board 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
LWEF (100 kW or more)	One (1) mile from facility property lines	500 feet

* Such minimum setbacks for a WEF shall be measured from its outermost extension (whether blade tip, nacelle/turbine housing, or tower/pole edge) that is nearest the WEF property line, public or private right-of-way, and access easement.

** 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). No portion of any wind turbine blade shall be closer than 25 feet to any portion of the ground that surrounds any WEF.

No LWEF wind turbine shall be permitted to be within five (5) miles of any operating or proposed radar facility (NEXRAD, military, commercial, etc.).

8-4 LWEF Escrow Account: The Applicant shall pay to the County a non-refundable Application Fee (see § 8-10). The County Board and/or Planning Board reserve the right to obtain engineering, economic impact, environmental impact, or other professional services to aid in the review of any submitted WEF application. These costs (and other expenses incurred by the County) are reimbursable only from the Escrow Account, not the Application Fee.

- 8-4.1 The Applicant shall reimburse the County for all oversight expenses incurred relating to the LWEF, from application through decommissioning.
- 8-4.2 These LWEF-related oversight expenses include (but are not limited to) amounts required for Building Permits, Licensing, Re-Licensing, and Decommissioning — e.g. administration, engineering, expert health and wildlife evaluations, handling complaints, legal, etc. “Legal” includes reasonable attorney fees for the County if the County has to sue the Applicant.
- 8-4.3 Any Escrow Account interest shall stay with the account and be considered new principle.
- 8-4.4 This Escrow Account will be setup by the Applicant at the time of the LWEF permit Application. This Escrow Account will be at a financial institution approved by the County, solely in the name of the County, to be managed by the County Treasurer (or designee). The Applicant will make an initial deposit of \$50,000. A LWEF Permit Application will not be processed until proof of deposit has been provided by the Applicant. A LWEF Permit Application determination will not be made until all costs incurred by the County to date, have been reimbursed by the Applicant.
- 8-4.5 If the LWEF Application is denied, all Escrow Account funds will be returned to the Applicant, less related expenses incurred by the County. The money will be returned, along with a statement as to these costs, within 30 days of the Application being formally denied, or receipt of a Letter of Withdrawal. Permit Fees are non-refundable.
- 8-4.6 This Escrow Account will be funded during the life of the LWEF by the Applicant/Owner/Operator. The Applicant/Owner/Operator will replenish any Escrow funds used by the County within 14 days of being sent written notification (and explanation) of said withdrawals. Failure to maintain the Escrow Account at \$50,000 (within 30 days of being given notice) shall be cause for revocation (or denial of renewal) of the LWEF Permit.
- 8-4.7 Once the Owner believes that they have satisfactorily complied with the decommissioning conditions herein, they will send the County written notification. The County then has sixty (60) days to verify to their satisfaction that all decommissioning conditions have been complied with. If there is material non-compliance, the County will so notify the Owner and the process starts over. Otherwise the County will return all Escrow Account funds to the Owner, less related expenses incurred by the County, along with an explanatory statement.

8-5 Installation and Design:

- 8-5.1 **LWEF Power Collection:** The electrical connection system from the turbines to a collection point or substation shall, to the maximum extent possible, be placed underground. The power from that collection point or substation may use overhead transmission lines, if approved by the Planning Board.
- 8-5.2 **Road Analysis:** The applicant shall agree, in writing, to the conditions of ¶ 9-3.
- 8-5.3 **Security:** The Applicant shall submit design plans to verify that the WEF is:
- A. Located, fenced, or otherwise secured so as to prevent unauthorized access.
 - B. Made inaccessible to individuals and constructed or shielded in such a manner that they cannot be climbed or collided with.
 - C. Installed in such a manner that they are readily accessible only to persons authorized to operate or service them.
- 8-5.4 **The WEF shall:**
- A. Be a non-obtrusive color (such as light blue, off-white, or light gray) that blends with the sky, as determined by the Planning Board.
 - B. Not be artificially lighted, except to the extent required by the Federal Aviation Administration or other applicable authority that regulates air safety.
 - C. Not contain any signs or other advertising (including flags, streamers or decorative items or any identification of the turbine manufacturer, WEF owner and operator). This does not include any identification plaques that might be required by the electric utility or a governmental agency.

- D. Be sited and operated so as to not interfere with television, internet service, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception in neighboring areas. The applicant and/or operator of the WEF shall be responsible for the full cost of any remediation necessary to correct any problems or provide equivalent alternate service, within thirty (30) days of being given notice. This includes relocation or removal of problematic turbine(s), or any other equipment, transmission lines, transformers, and other components related thereto.
- E. Have a leak containment system for oil, hydraulic fluids, and other non-solids that is certified by an expert (such as an engineer, turbine manufacturer, etc.) acceptable to the Planning Board that all such fluids will be captured before they reach the ground. The applicant shall pay the cost(s) of the expert.
- F. For LWEFs, prepare an incident response plan that ensures that local emergency responders have the necessary equipment and training to effectively handle emergencies such as oil spills, turbine fires, turbine structural damage (or collapse) of equipment, including access to heavy equipment needed for rescue of trapped personnel. The Escrow Fund will be used to reimburse all local emergency responders for any necessary equipment or training required.

8-6 LWEF Real Property Value Protection Plan:

The LWEF Applicant shall assure the County that there will be no loss in real property value within two miles of each wind turbine within their LWEF. To legally support this claim, the Applicant shall consent in writing to a Real Property Value Protection Agreement (“Agreement”: see ¶ 9-5) as a condition of approval for the LWEF. This Agreement shall provide assurance to non-participating real property owners (i.e. those with no turbines on their property) near the LWEF, that they have some protection from LWEF-related real property values losses.

8-7 LWEF Surety for Removal, when Decommissioned:

The applicant shall place with the County an acceptable letter-of-credit, bond, or other form of security that is sufficient to cover the cost of removal at the end of each WEF turbine’s useful life, as detailed in the decommissioning plan. Such surety shall be at least \$200,000 for each wind turbine. The Planning Board may approve a reduced surety amount that is not less than 150% of a cost estimate that is certified by an Engineer, salvage company, or other expert acceptable to the Planning Board. This calculation will not take into account any estimated salvage values.

The County shall use this surety to assure the faithful performance of the decommissioning terms and conditions of the Applicant’s plan and this law. The full amount of the bond or security shall remain in full force and effect until all necessary site restoration is completed to return the site to a condition comparable to what is was prior to the WEF, as determined by the Planning Board (see ¶ 9-7). The Applicant will be responsible for assuring that any subsequent Assigns of the LWEF, will provide acceptable surety to the County, prior to any transfer of ownership.

8-8 LWEF Liability Insurance:

8-8.1 The holder of a permit for a LWEF shall agree to secure and maintain for the duration of the permit public liability insurance, as follows:

- A. *Commercial general liability covering personal injuries, death and property damage:* \$10,000,000 per occurrence (\$20,000,000 aggregate), which shall specifically include the County and its officers, councils, employees, committee members, attorneys, agents and consultants as additional named insureds.
- B. *Umbrella coverage:* \$50,000,000.

8-8.2 The insurance policies shall be issued by an agent or representative of an insurance company licensed to do business in the State and with at least a Best's rating of "A".

8-8.3 The insurance policies shall contain an endorsement obligating the insurance company to furnish the County with at least 30 days prior written notice in advance of a cancellation.

- 8-8.4 Renewal or replacement policies shall be delivered to the County at least 15 days before the expiration of the insurance that such policies are to renew or replace.
- 8-8.5 No more than 15 days after the grant of the permit and before construction is initiated, the permit holder shall deliver to the County a copy of each of the policies or certificates representing the insurance in the required amounts.
- 8-8.6 A certificate of insurance that states that it is for informational purposes only and does not confer sufficient rights upon the County, shall not be deemed to comply with this Local Law.

8-9 LWEF Indemnification:

The granting of the County's LWEF Permit shall contain an indemnification provision. This clause shall require the applicant to at all times defend, indemnify, protect, save, hold harmless, and exempt the County (and affected municipalities), and its officers, councils, employees, committee members, attorneys, agents, and consultants from any and all penalties, damages, costs, or charges arising out of any and all claims, suits, demands, causes of action, or award of damages, whether compensatory or punitive, or expenses arising therefrom, either at law or in equity, which might arise out of, or are caused by delivery, construction, erection, modification, location, equipment's performance, use, operation, maintenance, repair, installation, replacement, removal, or restoration of said LWEF, excepting, however, any portion of such claims, suits, demands, causes of action or award of damages as may be attributable to the negligent or intentional acts or omissions of the County, or its employees or agents. With respect to the penalties, damages, or charges referenced herein, reasonable attorneys' fees, consultants' fees, and expert witness fees are included in those costs that are recoverable by the County.

8-10 Permit Fees. Non-refundable Permit Application Fees shall be as follows:

- 8-10.1 LWEF Permit: \$200 per megawatt (MW) of rated maximum capacity
- 8-10.2 SWEF Permit: \$500 per turbine
- 8-10.3 Wind Measurement Towers Permit: \$200 per tower.
- 8-10.4 Wind Measurement Tower Permit renewals: \$100 per tower.

8-11 Standards for Planning Board's WEF Permit Application Decision:

The Planning Board may disapprove a WEF Permit Application for a variety of reasons, including but not limited to, the following:

- A. Conflict with safety and safety-related codes and requirements.
- B. The use or construction of a WEF that is contrary to an already-stated purpose of a specific zoning or land use designation.
- C. The operation of a LWEF would be a net economic liability to the community.
- D. The operation of a LWEF would create unacceptable health risks to the public.
- E. The placement and operation of a LWEF that would create an unacceptable risks to wildlife and/or regional ecosystems.
- F. The placement and location of a WEF would result in a conflict with, or compromise, or significantly change, the nature or character of the surrounding area.
- G. The operation of a LWEF would create unacceptable interference with any type of civilian or military radar systems.
- H. Conflicts, as determined by the Planning Board, with the military's unrestricted ability to use the Restricted Air Space, including no flight hazards and/or use limitations. In addition, the Planning Board will consider whether construction or operation of the proposed WEF would encroach upon or would otherwise have a significant adverse impact on the mission, training, or operations of any military installation or branch of military in the State.
- I. Conflicts with any provisions of this Local Law.

Section 9. WEF Post-Permit Approval Requirements

9-1 WEF Certification

Prior to operation of any approved and constructed WEF, the applicant must provide a certification that the project complies with applicable codes, industry practices and conditions of approval (where applicable).

9-2 Reservation of Authority to Inspect WEF

In order to verify that the holder of a permit for a WEF 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, Local Laws 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, and maintenance of such facilities, including all turbines, towers, buildings, and other structures constructed or located on the site.

- 9-2.1 Wind Energy Facilities shall not begin operation until all approvals required under this Local Law shall have been obtained, and all required certifications are provided.
- 9-2.2 Following the issuance of any approval required under this Local Law, the Planning Board or its designee shall have the right to enter onto the Site upon which a WEF has been placed, at reasonable times in order to inspect such WEF and its compliance with this Local Law.
- 9-3.3 After undertaking such inspection, the Planning Board or its designated representative shall provide notice of any non-compliance with the terms of this Local Law or the conditions of approval of any permit issued hereunder, and shall provide the owner or applicant with a reasonable time frame to cure such violation, such time frame to be determined based upon the seriousness of the violation, its actual and/or potential impact upon public safety, and the actual and/or potential impact of the violation upon County residents and/or local ecosystems.

9-3 WEF Construction Related Damage

The owner of any permitted WEF shall, to the extent practicable, repair or replace all real or personal property, public or private, damaged during the WEF construction.

The applicant shall reimburse the NC DOT and/or County (as appropriate) for any and all repairs and reconstruction to roads that are necessary due to the construction or decommissioning of the LWEF. A qualified independent third party or other qualified person, agreed to by the NC DOT and/or County (as appropriate) and the applicant, shall be hired to pre-inspect the roadways to be used during construction and/or decommissioning. This third party shall be hired to evaluate, document, and rate the roads condition prior to construction or decommissioning of the LWEF, and again 30 days after the WEF is completed or removed.

- A. Any road damage during construction that is done by the applicant and/or one or more of its subcontractors that is identified by this third party shall be repaired or reconstructed to the satisfaction of NC DOT and/or County (as appropriate) at the applicant's expense, prior to the final inspection. In addition, the applicant shall pay for all costs related to this third party pre-inspection work prior to receipt of the final inspection.
- B. The surety for removal of a decommissioned WEF shall not be released until the Planning Board is satisfied that any road damage that is identified by this third party during and after decommissioning that is done by the applicant and/or one or more of its contractors or subcontractors has been repaired or reconstructed to the satisfaction of the NC DOT and/or County at the applicant's expense. In addition, the applicant shall pay for all costs related to work of this third party's inspection prior to receipt of the release of the surety.

9-4 LWEF Noise Impacts:

Independent acoustical experts have determined that 35 dBA is a reasonable proxy to protect nearby citizens from harmful infrasound. As such, no part of the LWEF shall produce noise above 35 dBA LAeq for more than five (5) consecutive minutes, as measured at any WEF property line or residence. Each occurrence by individual turbines shall be a separate violation of this Local Law, and the penalties (see ¶ 10-2) shall be cumulative.

If noise levels exceed 35 dBA for more than five (5) consecutive minutes, as measured at any WEF property line or residence, the problem turbine(s) shall be shut down within one business day of being directed to do so by the Planning Board or their designee. The problem turbine(s) shall remain shutdown until it can be demonstrated to the satisfaction of the Planning Board (or their designee) that those turbines can be operated so as to not exceed 35 dBA for more than five (5) consecutive minutes, as measured at all WEF property lines, or proximate residences.

9-5 LWEF Real Property Value Protection Plan:

The Applicant guarantees that there will be no loss in real property value within two miles of the LWEF, due to the LWEF. Any real property owner(s) included in that area who believe that their property may have been devalued due to the LWEF, may elect to exercise the following option:

- 9-5.1 All appraiser costs are paid by the Applicant, from the Escrow Account. Applicant and the property owner shall each select a licensed appraiser. Each appraiser shall provide a detailed written explanation of the reduction, if any, in value to the real property ("Diminution Value"), caused by the proximity to the LWEF. This shall be determined by calculating the difference between the current Fair Market Value (FMV) of the real property and what the FMV would have been at the time of exercising this option, assuming no WEF was proposed or constructed.
 - A. If the higher of the Diminution Valuations submitted is equal to or less than 25% more than the other, the two values shall be averaged ("Average Diminution Value": ADV).
 - B. If the higher of the Diminution Valuations submitted is more than 25% higher than the other, then the two appraisers will select a third licensed appraiser, who shall present to Applicant and property owner a written appraisal report as to the Diminution Value for the real property. The parties agree that the resulting average of the two highest Diminution Valuations shall constitute the ADV.
 - C. In either case, the property owner may elect to receive payment from Applicant of the ADV. Applicant is required to make this payment within 60 days of receiving said written election from property owner.
- 9-5.2 Other Agreement Conditions:
 - A. If a property owner wants to exercise this option, they must do so within 10 years of the WEF receiving final approval from the County.
 - B. A property owner may elect to exercise this option only once.
 - C. The Applicant and the property owner may accept mutually agreeable modifications of this Agreement, although the Applicant is not allowed to put other conditions on a financial settlement (e.g. confidentiality). If the property owner accepts some payment for property value loss based on an alternative method, that that acceptance and payment shall be considered an exercise of this option.
 - D. This Agreement applies to the property owner of record as of the date of the LWEF approval, and is not transferrable to subsequent owners.
 - E. The property owner of record as of the date of the LWEF approval must reasonably maintain the property from that time, until they choose to elect this option.
 - F. The property owner must permit full access to the property by the appraisers, as needed to perform the appraisals.

- G. The property owner must inform the appraisers of all known defects of the property as may be required by law, as well as all consequential modifications or changes to the property subsequent to the date of the LWEF application.
- H. This Agreement will be guaranteed by the Applicant (and all its successors and assigns), for 10 years following the LWEF receiving final approval from the County, by providing a bond (or other surety) to the County, in an amount determined to be acceptable by the County. This surety account will ensure execution of all aspects of this Agreement (including compensation of eligible property owners in the case of default by Applicant). Failure to maintain this surety account shall be cause for revocation (or denial of renewal) of the LWEF Permit.
- I. Payment by the Applicant not made within sixty (60) days will accrue an interest penalty. This will be twelve percent (12%) annually, from the date of the written election from property owner.
- J. For any litigation regarding this Agreement, all reasonable legal fees and court costs will be paid by the Applicant.

9-6 LWEF Environmental Monitoring:

The Applicant will permit post-construction environmental studies deemed appropriate by the County Planning Board. These will be funded by the Escrow Account. Post-construction field studies will include scientific assessments of regional nesting failures, and territory abandonment of special status species like raptors species, within two (2) miles of the LWEF. When these assessments are being done, only researchers involved with these studies will be legally allowed to touch carcasses. LWEF personnel who move carcasses without written County approval will be subject to a fine per ¶ 10-2.2, as wind turbines do kill endangered and other highly protected species. During the life of the project every bird or bat carcass, or crippled bird or bat found anywhere within the LWEF must be reported to the County by the Applicant within seven (7) days.

9-7 LWEF Decommissioning:

The County Planning Board will review the projected Decommissioning costs (¶ 8-2.13) every five (5) years. The LWEF owner will adjust their security to any changes from the original calculation.

If the County Building Codes official condemns any portion of a LWEF, or if no electricity is generated from any turbines for three (3) consecutive months, the LWEF owner and/or property owner shall have three (3) months to remedy the safety issues or complete the decommissioning of the WEF, according to the approved plan.

- 9-7.1 The Planning Board 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 supplier or the need to repair a LWEF damaged by a storm.
- 9-7.2 Decommissioning shall include the complete removal of turbines, buildings, electrical components, cabling, roads, and any other associated facilities and/or structures, including below-ground items (e.g. foundations), to a depth of four (4) feet below grade.
- 9-7.3 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.

9-8 WEF Complaints:

The County shall set up a procedure for filing and handling WEF complaints. The WEF owner shall initially be given a reasonable opportunity to resolve all complaints. The cost of such resolution shall be borne by the WEF owner. If resolution is not made in a reasonable time (as determined by the County), the County may utilize its Escrow Account to attempt to resolve any LWEF issues. The County may establish a monitoring committee to oversee resolution of complaints regarding LWEFs.

Section 10. Miscellaneous

10-1 LWEF Tax Exemption

The County reserves the right to opt out of the Tax Exemption provisions of Real Property Tax Law. Further, the County reserves the right to assess any and all parts of the WEF at their full current market value. That value will be determined by the documented construction cost, less any applicable depreciation.

10-2 Enforcement; Penalties and Remedies for Violations

10-2.1 The County Commissioners and/or Planning Board shall appoint such County staff or outside consultants as it sees fit to enforce and implement this Local Law.

10-2.2 Any person owning, controlling or managing any building, structure or land related to a WEF, shall be legally and financially responsible for any and all violations of this Local Law. Such violations would include noncompliance with the terms and conditions of the permit herein, or any order of the enforcement officer. Any person who is responsible for so doing, shall be guilty of an offense and subject to a fine of not more than \$1000 per incident, and/or any other penalties provided by local, State, or Federal law.

Every such person shall be deemed guilty of a separate offense for each week such violation shall continue. The County may institute a civil proceeding to collect civil penalties in the amount of \$1000 for each violation, and each week said violation continues shall be deemed a separate violation. If multiple turbines are in violation, each turbine's violation shall be considered a separate offense.

10-2.3 In case of any violation (or threatened violation) of any of the provisions of this Local Law, including the terms and conditions imposed by any permit issued pursuant to this Local Law, in addition to other remedies and penalties herein provided, the County may institute any appropriate legal action or proceeding to prevent such unlawful erection, structural alteration, reconstruction, operation, moving and/or use, and to restrain, correct or abate such violation, to prevent the illegal act.

10-3 Fiscal Responsibility

10-3.1 The Planning Board may, at its discretion, request the most recent annual audited financial report of the permittee prepared by a duly licensed Certified Public Accountant, during the review process. If such report does not exist, the Planning Board may, in its sole discretion, require a suitable alternative to demonstrate the financial responsibility of the applicant and its ability to comply with the requirements of this Local Law.

10-3.2 No transfer of any LWEF, or permit, or the sale of more than 30% of the stock of such entity (not counting sale of shares on a public exchange) shall occur without written acceptance by such entity of the obligations of the permittee under this Local Law and the terms of the permit. Any such transfer shall not eliminate the liability of any entity for any act occurring during its ownership or status as permittee.

Section 11. Applicability

The requirements of this Local Law shall apply to all WEFs proposed, operated, modified or constructed after the effective date of this Local Law.

Section 12. Severability

Should any provision of this Local Law be declared by any Court, administrative body, or board, or any other government body or board, to be unconstitutional, invalid, preempted, void, or otherwise inapplicable for any reason, such decision shall not affect the validity of this Local Law as a whole or any part thereof other than the part so decided to be unconstitutional, invalid, preempted, void, or otherwise inapplicable.

— **See Notes & Objectives on following pages** —

— LOCAL NC MODEL WIND LAW NOTES —

- 1: North Carolina (like almost every other state) has state laws that direct local legislators to “protect the health, safety and well-being” of their community. **That is the fundamental premise that this entire law is based on.** *Every* aspect of this law is examined under that light. [Note: we are aware of no NC law obligating legislators to promote the interests of business entrepreneurs, wind or otherwise.]
- 2: The “Findings” (Section 5) are particularly important, as they set the stage for the subsequent rules and regulations. The Findings here make it clear that there are numerous potential serious downsides to industrial wind energy. These need to be carefully considered before an accurate determination of **net benefits** can be made.
- 3: After considerable research it has been determined that an effective regulatory industrial wind law addresses six key protections: **a)** setbacks, **b)** noise, **c)** property value, **d)** environmental, **e)** escrow account, and **f)** decommissioning.
- 4: “Mitigate” has become a legal weasel word that ranges from fix (a problem), to make it better. But how much better is sufficient: 1%? We have substituted “remediate” to make it clearer that the objective is to *remedy* the problems caused by wind energy.
- 5: Although it is a rarity in other wind laws we’ve seen, we strongly believe that a net economic assessment (§ 8-2.6) is an important, and justifiable requirement.
- 6: In most wind laws the developer is allowed to hire their own experts to conduct various environmental tests. If the developer contracts with a sympathetic associate, the resultant tests are likely to have little value. This law provides a simple solution (§ 8-2.7): *give the money that the developer was going to spend on experts, to the County.* The County then hires **independent** experts. The cost will be approximately the same to the developer, so they have no legitimate complaint against this arrangement — but the results to the community will likely be *radically* better.
- 7: We also strongly believe that taxpayers should not be subsidizing the costs incurred by the County, in behalf of these entrepreneurs for these lucrative projects. As such there is a strong (and very justifiable) Escrow Account that is required (§ 8-4).
- 8: For technical details on most aspects of this Model Law (and supporting studies), please see **WiseEnergy.org** (especially the “Legal Matters” page).
- 9: Although we have combined SWEF and LWEF into one law, some people prefer to separate the two. We did this as one of our basic objectives is KISS, but it’s your call.
- 10: Always consult with a competent attorney when involved in any legal matter.

— See Objectives on the next page —

— PROPOSED WIND LAW OBJECTIVES —

The objective in writing this law was to produce a *very* high quality wind law — i.e. an ordinance with rules and regulations that:

- a) reasonably and effectively protect the health, safety and well-being of local citizens and visitors,
- b) reasonably and effectively protect the property rights of local residents,
- c) reasonably and effectively safeguard the local economy,
- d) reasonably and effectively defend the military,
- e) reasonably and effectively conserve the environment and preserve local ecosystems,
- f) are understandable to legislators and citizens (KISS),
- g) will result in objective and meaningful tests and reports,
- h) are relatively easy to implement,
- i) will not be any expense to taxpayers,
- j) are scientifically sound, *and*
- k) can likely withstand a legal challenge (e.g. by the developer).

For any questions or suggestions please email physicist John Droz: “aaprjohn *at* northnet *dot* org”.