

CHOWAN WIND ENERGY FACILITIES ORDINANCE REVIEW

Chairman Lou Sarratt

Sub-Committee Members:

Patti Kersey

Jim Leggett

Jim Robison

March 31, 2015





Project Overview

- Review of County 2013 Wind Ordinance
 - The 2013 Ordinance was based solely on the developer's specifications
 - A review is necessary to ensure the Ordinance adequately addresses **all** aspects of a Utility Size Wind Energy Facility.
 - This is necessary to ensure **Health, Safety** and **Welfare** of present and future Chowan County citizens are adequately protected

Procedure

- Given that the review was to be completed in 30 days, the committee evaluated wind ordinances from comparable towns and counties as compared to the Chowan County ordinance.
- The ordinances from these towns and counties were thoroughly vetted by independent and qualified subject matter experts, with legal review, in accordance with respective state laws
- The Ordinances evaluated and compared are from:
 - Carteret County, North Carolina
 - The town of Newport, North Carolina
 - Madison, Idaho
 - Montville, Maine
 - Bethany, New York
 - Trempealeau County, Wisconsin
 - Eddington, Maine
 - Sumner, Maine
 - Jackson, Maine



The following major factors were compared:

- Property Value Protection (Potential Loss)
- Adequate Setbacks as related to Max Height and Flicker
- Proper Acoustical Limits
- Environmental Assurances and Aesthetics
- Decommissioning Rules
- Sufficient Escrow Account

Common Ordinance Review Characteristics and Findings

- Property Value Guarantee
 - Owner/Operator provides a “Real Estate Property Assurance Plan” to non-participating property owners within one mile or more of property line
 - Stipulates liabilities associated with property value loss and health problems attributed to the wind facility
 - Applies to sale or transfer of the facility
 - The wind industry claims there will be no loss of property value. If so, this provision will cost them nothing.



- **Setbacks**

- The majority of ordinances reviewed establish setback from all non-participating property lines of one mile (5,280 feet)
- Proper Setbacks and siting will be of “key” importance to health, safety and quality of life issues
 - Reduce noise
 - Reduce flicker (shadow)/Glint (reflected light)
 - Preserve real estate values
 - Appease residents who do not want “tall spinning objects” too close to their homes
 - Preserve Quality of Life complaints and lawsuits
- Maximum height allowed in the ordinances reviewed is 450 feet, except Chowan, which allows 600 feet - higher than any existing in the US.



- Acoustical Limits


- Two factors

- Audible Sound - 20Hz to about 20,000Hz
- Infrasound - below 20 Hz, felt not heard

- Excessive and repetitive sound can adversely affect health

- Most ordinances require that sound levels not exceed 35 dBA at the property line

- Justified for health and quality of life concerns

- 
- Environmental Protections, Aesthetics
 - Rules to protect birds, bats, vegetation, water resources, etc.
 - Chowan County rules should incorporate the **best practices** found in the ordinance review
 - The County, not the developer, would determine what surveys and tests would be done
 - The County would hire independent experts to conduct such surveys and tests



- Decommissioning

- Addressed in current Chowan ordinance, but needs more protections
- Required after 12 months of no electric generation, license revocation or abandonment
- Post Bond sufficient to cover all decommissioning costs *before construction (with annual escalation clause)*
- All provisions to apply in case of sale or transfer of facility ownership
- In the event of Owner/Operator default, the land owner is ultimately responsible for decommissioning



- Escrow Account

- The developer would establish an escrow account to pay County Expenses related to all aspects of the project.
- The account should be replenished periodically
- Costs to the County to properly regulate such a large scale industrial facility over its' projected lifetime could easily exceed \$100,000. There is no justifiable reason that the developer should not bear such costs rather than the county taxpayers.

Sample issues that other communities have included in their regulations

- There are many other issues that communities have addressed, however it is the objective of this Planning Board to keep regulations as simple as possible.
- If a good job is done on addressing the basics, adequate protection from other issues should be adequately covered.
 - Ground water impact/protection
 - Hazards to aviation
 - Monitoring - periodic testing
 - Security (Vandalism/Terrorism)
 - Siting and placement issues in addition to setbacks
 - Stray voltage (aka Ground Current)
 - Glint
 - Light pollution
 - Design, access, warnings, inspection, liability insurance
 - Fire risk and Fire Department needs

Recommendations For Additions to Chowan County WEF Ordinance

- A property value guarantee
- 5,280 foot setback from all non-participating property lines
- Acoustical limit of 35 dBA at all non-participating property lines
- Incorporate the best practices found in the ordinance review for protection of the environment and aesthetics
- Decommissioning and removal required after 12 months of no electrical generation and a surety bond requirement
- A developer funded escrow account to pay all county expenses

Wind Ordinance Scores

	Property Values	Height	Setback	Acoustical	Environmental	Decommissioning	Total
Chowan	0	0	1	1	0	5	7
Carteret, NC	10	10	10	10	10	10	60
Newport, NC	10	10	9	10	2	10	51
NC HB 484	0	0	0	1	1	2	4
NC "Model" Wind Ordinance	0	0	1	1	0	2	4
Sumner, Maine	0	5	10	10	10	8	43
Montville, Maine	7	0	10	10	8	5	40
Bethany, New York	7	5	1	10	8	9	40
Eddington, Maine	0	6	10	10	5	7	38
Jackson, Maine	0	9	6	10	8	5	38
Madison, Idaho	0	9	10	5	5	8	37
Trempealeau County, Wisconsin	0	0	10	8	4	8	30

Location	Property Value (potential Loss)	1. Setback 2. Max Height 3. Flicker	Acoustical Limits	Environmental Concerns/ Aesthetics	Decommissioning Rules
Chowan Co. North Carolina	<i>Not Addressed</i>	1. Occupied Bldg: 2.5x Residence: 2.5x Property L: 1.5x Public Rd: 1.5 1.5 x 600 = 900 ft 2.5 x 600 = 1,500 ft 2. 600 ft 3. <30 Hrs/yr at any Nonparticipating occupied structure	<55dBA as measured at any occupied building or residence on the property of a Non-Participating landowner	Not Addressed	12 m of no generation ; Removal down to 3 ft; Land restored; bond in amount equal to the “estimated” removal costs “less salvage value”
Carteret Co. North Carolina	Owner/Operator reimburses any adjacent non-participating property owner for property value loss due to turbines based upon independent appraisal (“Real Property Protection Plan”)	1. Occupied or vacant dwelling structure: 1 mile Property Line: 1 mile Public or Priv ROW: 1 mile 2. 275 ft 3. Designed so flicker/glint will not fall on or in any roadway or occupied property	<35dBA; may not exceed for more than 5 consecutive minutes as measured at any property line If exceeds 35dBA for more than 48 consecutive hrs, the facility shall be shut down until owner/operator has mitigated so as not to exceed 35dBA	1. Requires Environmental Impact Study from all applicable state and federal agencies 2. Applicant will provide Co. with an Escrow Act to cover all expenses related to testing 3. Wires underground 4. Non-obtrusive color 5. No artificial lighting; FAA requirements only	6 m of no generation; within 3 months, owner/operator or the property owner will have 3 additional months to remedy or complete the decommissioning; Complete removal of all turbines and associated material, including all below ground items such as foundations and power lines
Town of Newport, North Carolina	Real Property Value Protection for any property within 2 miles of the WEF. Loss in property value determined by independent appraiser; WEF owner pays the lost value	1. 5,000 ft from non-participating property lines 2. 275 ft. 3. flicker/glint will probably not be a significant problem if setback adhered to	< 35 dBA at any non-participating property line for more than 5 times in 7 consecutive days	1,000 ft setback from national forest to mitigate fire hazard Liability insurance required	Considered decommissioned if no generation for 180 days, removal must start within 120 days Surety Bond of \$500K per turbine + \$75K for each building

Location	Property Value (potential loss)	1. Setback 2. Max. Height 3. Flicker	Acoustical Limits	Environmental Concerns/Aesthetics	Decommissioning Rules
Madison, Idaho	<i>Not Addressed</i>	1. Occupied Bld : 1 mile Property Line: 3 X turbine height Public Rd: 1.5 plus 100 ft x total height 2. 300 ft	Address only for “small wind turbines” = 60 ft <45 dBA	1. No advertising 2. No artificial lighting except as determined by FAA 3. All wiring (between turbines and substation) must be underground	Requires a signed statement by the land owner acknowledging that the Owner/Oper and land owner are financially responsible (if Owner/Operator fails to completely reclaim
Montville, Maine	Owner/Operator provides a “ Real Estate Property Assurance Plan” to non-participating property owners w/in 1 mile of property line	1. Non-Participating Property Line: 1 mile or 13x turbine height Public Roads: 4x turbine height measured horizontally 2. No Max 3. <10 Hr/yr designed and sited so no impact on residences/facility	<5dBA/20dBC of pre-construction levels measured at any non-participating property Siting and Setback will assist in mitigating noise	1. Wildlife & Habitat analysis required prior to permitting. 2. Nighttime “Light Pollution” plan required prior to permitting Only FAA minimal standards lighting; Must use RED rather than WHITE lights	12 m of no generation; license revoke or abandonment. Removal down to 3ft Post Bond equal to 100% of “ Decom Costs” or”Net Decom Costs (includes salvage value) if “Net” falls below 100%. Estimates submitted after first year, biannually
Bethany, New York	Owner/Operator provides a “Real Estate Property Assurance Plan” to non-participating property owners w/in 1 m of property line	1. Occ Bldg & Res: 450% of Turbine height (1/2m) Property L: 150% turbine height Between turbines; public roads: 165% 2. 450ft 3.Shadow map prior to permit; mitigate at own expense	<35 dBA; measured at the property line of any non-participating landowner Quarterly review of noise levels shall be ongoing requirement for renewal of permit	1. Pre and Post field studies for adverse effects Owner/Operator pays all costs of studies 2. Non reflective paint 3. Cable buried underground.	6 m of no generation; Removal to 4ft. Owner/Operator responsible for all removal costs. Surety Bond held by town w/annual escalation clause

Location	Property Value (potential Loss)	1. Setback 2. Max. Height 3. Flicker	Acoustical Limits	Environmental Concerns/ Aesthetics	Decommissioning Rules
Trempealeau, Wisconsin	Not Addressed	1. Occ Bldg& Res: 1 mile Property Line: 1/2 mile Wild Life 'areas': 2 mile 2. No Max Height 3. Unless mitigated with non-participating property owner, no parcel of land sub to Shadow Flicker	NTE <5 dBA over existing ambient noise or exceed 40 dBA for any period of time, when measured at any structure. Owner/Operator submits a pre and post-cons background noise survey	1. Pre and Post field studies re bird impacts and if warranted, "monopole tubular towers" must be used 2. Non Reflective Paint 3. Wiring below ground 4. Minimal lighting (FAA)	12m of no generation Owner/Op or land owner financially responsible for entire decommission and removal Must post renewal bond for each turbine's decommissioning
Eddington, Maine	Not Addressed	1. Occupied Bldg: 5,280 ft (1 mile) Property L: 2500 ft (1/2 mile) Local Roads: 1500 ft 2. 400 ft 3. <10 Hrs/yr at any non-participating occupied structure	35dBA within 100 ft. of occupied structure <10dBA above pre-construction ambient noise level	1. 2500 ft setback from scenic resources 2. Non-reflective, unobtrusive color 3. Wires underground 4. Stray voltage tests 5. No provisions for wildlife	12 m of no generation; license revoke, abandonment Remove all structures, all foundations, and all roads Restore site to pre-construction condition Performance Bond required
Sumner, Maine	Not Addressed	1. Property L: 5,280 ft (1 mile) Public Rd: 1750 ft 2. 450 ft 3. <3 days/mo or 12 hrs/yr on any non-participating homes	<35dBA or <5dBA above pre construction ambient noise level <50dBC anywhere Pre and post construction noise testing required	1. Pre and post construction field studies for significant adverse effects. Must demonstrate no adverse effects on environment 2. No electronic interference 3. Stray voltage testing	180 days after gen. stopped Removal of all structures and foundation down to 3 ft Performance Bd for estimated decom cost less salvage
Jackson, Maine	Not Addressed	1. For all Setbacks: 13 x Height of Turbine 2. Max Height: 300 ft 3. <10 Hr/yr on any occupied bldg or on any non-participating land or w/in 100 ft of an occupied building	<5dBA of pre-construction ambient noise at any property line <20dBC above pre-construction ambient noise in an occupied bldg or at any Prop Line	Pre and post construction field studies for significant adverse effects. Must demonstrate no adverse effects on the environment	12 m of no generation Remove all structures and foundation down to 3 ft Performance bond for estimated decommission cost less salvage

NORTH CAROLINA “MODEL” WIND ORDINANCE

- July 2008; North Carolina “Wind Working Group”
- Input from “wind energy professionals,” non-profit organizations,” and “other stakeholders interested in responsible wind energy development.”
- “The Wind Working Group **encourages each community to modify the model ordinance to meet their needs.**”
- “Setbacks are ‘**minimum**’ requirements; the Model Wind Ordinance **“omits lot size requirements and height restrictions.”**”
- Does not address **infrasound, property values, environmental impacts, wildlife, or financial responsibility**