UTILITY-SCALE WIND ENERGY SYSTEMS-
COMPARATIVE TABLE OF OTHER JURISDICTIONAL REGULATIONS

COMMUNITY	Setback from Residential Structure	Setback from Residential Structure Participating	Setback from Residential Structure Non-Participating	Setback from a Property Line	Setback from a Property Line Participating	Setback from a Property Line Non-Participating	Setback from a Public Right-of-Way	Maximum Decibels	Maximum Decibels Day	Maximum Decibels Night	Shadow Flicker	Total Height Limitations
Shiawassee County (As Proposed October 23, 2013)		≤ 100% the total structure height	≤ 200% the total structure height			150% of total height	≤ 100% the total structure height	Measured from the exterior of structure 45 dB(A); From non-participating property line 55dB(A)				**100** feet maximum for private turbines **600** feet maximum for commercial turbines and must be compliant with FAA, Act 259 of 1959, and Michigan Airport Zoning Act guidelines
Clinton County (As Proposed August 19, 2011)	4 times the total structure height, but no less than 1,600'. (b)	2.5 times the total height of turbine to an occupied structure. (b) However no less than 1.5 times the total height of the turbine.				1.5 times the total height of the turbine to a property line. (b) However no less than 1 times the total height of the turbine.	1.5 times the total height of structure	Measured from the exterior of a structure 45 dB(A); From non-participating property line 55dB(A)			Must provide a detailed report showing the location of any wind or test towers, their potential shadow areas, and the summation of impacts they may have on neighboring properties. Also mitigation efforts and projected impact should be displayed.	
Bridgehampton Twp., Sanilac County	2 times the hub height or 1000' (the greater of the two)			1.5 times hub height			1.5 times hub height	Measured from the exterior of a structure, 50 dBA. **(a) (b)**				**275** feet maximum, unless a site plan is approved and is compliant with FAA and Act 259 of 1959 guidelines
City of Walker, Kent County (Adopted June 16, 2009)		200% of total height, or 1,000', whichever is greater			150% of total height (c)	150% of total height (c)	150% of total height, no less than 400'		From adjacent property line used for residential purposes, ambient between 9pm & 9am	From adjacent property line used for residential purposes, ambient plus 5 between 9am and 9pm	Must conduct an analysis of shadow flicker on any occupied building with a direct line of sight to a medium or large wind tower. This must identify situations where occupied buildings are affected more than 30 hours per year and describe mitigation actions.	**400** feet maximum for large turbines, 150 for medium size turbines
Huron County (REVISED JUNE 2010)	1,000'. (b)		1,320' (b)		1.5 times hub height, 0 setback with associated easement	2 times hub height from overlay boundary	150% of hub height, no less than 400'	50 dB(A) measured from the residence of a participating property; 45 dB(A) measured from theresidence of non-participating property **(a) (b)**				**350** feet Maximum unless a site-plan is approved
Oliver Township, Huron County (Location of Harvest Wind Farm, Pigeon, MI)		1,000' (b)	1,320' (b)	1.5 times total height (b)			If property on other side of right-of-way is leased, then one rotor radius setback.	55 dB(A) at property line **(a) (b)**				No maximum, but requires: a site plan, engineering data, maintnance schedule, insurance, resident concent documents, sound pressure level, visual impact study, environmental impact study, shadow flicker analysis, manufacturers' material safety data sheet, decommissioning plan, complaint resolution process, and certifications of compliancy for state and federal laws
Gratiot County	2 times hub height, or 1,000', whichever is greater.			Turbines and access roads shall be located as to minimize disruption to agricultural activity; therefore the location of towers is encouraged along **internal property lines.**		1.5 times hub height		55 dB(A)at residence			Wind turbines cannot be placed next to occupied buildings that will create shadow flicker for more than 30 hours per year.	No maximum, but demonstrated compliance with Act 259 of 1959, FAA guidelines, and local airport zoning
Ottawa County (Model)	2 times total height, or 1,000', whichever is greater				1.5 times total height (c)	2 times hub height from overlay boundary	1.5 times total height, or 400' whichever is greater			Ambient between 9pm & 9am from residential or agricultural property line; Ambient plus 5 between 9am and 9pm From non-residential property line	Must conduct an analysis of shadow flicker on any occupied building with a direct line of sight to a medium or large wind tower. This must identify situations where occupied buildings are affected more than 30 hours per year and describe mitigation actions. Wind turbines cannot be placed next to occupied buildings that will create shadow flicker for more than 30 hours per year.	No maximum, but requires: a site plan, engineering data, maintnance schedule, insurance, resident concent documents, sound pressure level, visual impact study, environmental impact study, shadow flicker analysis, manufacturers' material safety data sheet, decommissioning plan, complaint resolution process, and certifications of compliancy for state and federal laws
Centerville Township, Leelanau County (REVISED 081010)	5 times total height of structure (Structure's limited to 199' in height)					10 times the diameter of the rotor			From 6 am to 10 pm, 35 dB(A) at property line and at locations within 1 mile	From 10pm to 6am ambient plus 3 dB(A) at property line and at locations within 1 mile	Shadow flicker cannot exceed 30 hours per year on an off site property. Any shadow flicker projected on a property shall not encroach more than 100' from an existing residence, unless the affected property owner has signed a written agreement waving the setback.	Maximum height of **199** feet.
Wilson Township, Charlevoix County				1,500', reduced to no less than 500' if other conditions are met.				50 dB(A) at Property Line			Documentation must be provided for any commercial wind tower's location and its projected shadow flicker cast on existing off site structures. Steps to mitigate projected shadow flicker should also be outlined.	Maximum height of **120** feet.
Manchester Township, Washtenaw County				150% of total height				55 dB(A) at property line				Maximum Height requirements are pursuant to Article 12 of the ordinance and FAA regulations
Fenton Charter Township, Genesee County				100% of total height				55 dB(A) at property line.			Mitigation measures should be displayed on any site plan, document, or other drawing pertinant to a wind tower's development.	No maximum height, but requires: a special use permit, site plan, visual impact analysis, avain and wildlife impact analysis, shadow flicker analysis, decommissioning plan, compliant resolution plan, and electromagnetic interference analysis.
Mason County	2 times the total height of the structure			2 times total height				45 dB(A) at residence; greater than 45dB(A) at property line as long future residence is at 45dB(A)				No maximum height, but requires: a special use permit, site plan, visual impact analysis, avain and wildlife impact analysis, shadow flicker analysis, decommissioning plan, compliant resolution plan, and electromagnetic interference analysis.
Otsego County				1.5 times the total height of the structure, but not less than 1,250'				Appears to be ambient			Any tower shall be constructed to minimize shadow flicker from the roadway, to prevent shadow flicker on any existing structures off-site of the tower, and to prohibit shadow flicker on any future lawfully constructed structure located off-site of the tower.	**400** feet Maximum Height
Sherman Township, Osceola County (Draft - 4.14.11)	2 times total height of tower					5 times total height of tower	1.25 times total height of tower		From 6 am to 10 pm, 35 dB(A) or ambient + 5 at property line and at locations within 1 mile	From 10pm to 6am at 30 dB(A) or ambient plus 3 dB(A) at property line and at locations within 1 mile	Applicant shall conduct an analysis by a professional approved by the township showing potential shadow flicker on structures in the direct line of sight. The analysis shall: identify locations where shadow flicker may occur throughout the year and for any occupied off-site structure affected more than 30 hours a year by shadow flicker, mitigation actions must be described.	No maximum height. Requires a special use permit, a site plan, and all requirements associated with each
Osceola Township, Osceola County	1.5 times total height of tower			1.5 times total height of tower				50 dB(A) at Property Line				No maximum height, but must be in coordinance with Osceola Township Zoning Ordinance

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Shiawassee County (As Proposed October 23, 2013)		≤ 100% the total structure height	≤ 200% the total structure height			150% of total height	≤ 100% the total structure height	Measured from the exterior of structure 45 dB(A); From non-participating property line 55dB(A)				**100** feet maximum for private turbines **600** feet maximum for commercial turbines and must be compliant with FAA, Act 259 of 1959, and Michigan Airport Zoning Act guidelines
Emmet County				1 times total height of tower				35 dB(A) at property line			Applicant must provide a shadow flicker model including: showing topography, existing residents, locations of structures, wind speeds and directions, existing vegitation and roadways. Also discribing problemed areas and potential mitigation actions for structures and roadways. Shadow flicker may not visible on or in any existing dwelling.	Maximum of **115** feet in residential discricts, Maximum of **199** feet in non-residential districts. Exceptions can be made by the Planning Commission
Claybanks Township, Oceana County	1,500'			Minimum of 2 times the height		3000'		40 dB(A) at property line of non-particiating; 47 dB(A) at property line of participating property.			Large wind towers shall be designed so that shadow flicker will not exist within 100' of an off-site occupied structure. If sufficent enough compliants exist a field verification and modeling expert will be hired by the Planning Commission at the owner/ operator's expense.	**500** feet Maximum
Riga Township, Lenawee County				Based on maximum decibels					From 6 am to 10 pm, 40 dB(A) at property Line	From 10pm to 6am 45 dB(A) at property line		**500** feet maximum, but if greater than **40** feet in height than conditional use permit required as well as site plan review.
(a.) Contains additional provisions for audible noise of a "steady pure tone" at various measured octaves.												
(b.) Waiver may be provided by adjacent property owner, or site property owner if setback from residential structure.												
(c.) May be reduced upon certification by professional engineer that structure is designed to collapse in an area less than the regulated distance												

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