

COUNTY OF MASON

STATE OF MICHIGAN

At a special meeting of the Planning Commission of the County of Mason, Michigan, held at West Shore Community College, 3000 N. Stiles Road, Scottville, Michigan, on the 7th day of July, 2011, at 6:30 p.m.

PRESENT: Robidoux, Patterson, Chambers, Fox, Schneider, Barnett.

ABSENT: Lundberg.

The following preamble and resolution were offered by Robidoux and supported by Schneider.

**RESOLUTION APPROVING UTILITY GRID WIND ENERGY SYSTEM
SPECIAL LAND USE**

**(Lake Winds Energy Park – Consumers Energy Company,
Summit And Riverton Townships)**

WHEREAS, Consumers Energy Company, a regulated public utility (“Consumers” or the “Applicant”) has applied for a utility grid wind energy system special land use (the “System”) consisting of wind turbine generators and other components for the purpose of generating electricity for transmission to its utility system customers;

WHEREAS, Consumers has acquired wind energy easement agreements signed by the owners of lands included in the System, whereby such owners have authorized the development and operation of the special land use on or affecting their respective lands;

WHEREAS, the lands comprising the special land use are located in the AG Agricultural District under the terms of Article V of the County Zoning Ordinance;

WHEREAS, Section 5.03.8 of the County Zoning Ordinance permits utility grid wind energy systems as a special land use if approved by the County Planning Commission, if the use complies with the specific requirements for utility grid wind energy systems as stated in Section 17.70; the standards for approval of special land uses as stated in Section 16.05; the standards for approval of site plans as stated in Section 18.05; and other applicable zoning ordinance provisions;

WHEREAS, Consumers has submitted a site plan for the proposed special land use, subject to approval under the terms of Section 18.05 of the Zoning Ordinance;

WHEREAS, the Planning Commission has reviewed and studied the application and extensive supporting materials submitted by the applicant and extensive other materials,

communications, exhibits and other written comment and information received from other interested parties, with respect to the requested special land use; and

WHEREAS, the Planning Commission has held a public hearing on the application for the special land use, after the required public notice, and has heard and considered comments received from the Applicant and many other interested parties during the hearing, which was continued during multiple days.

IT IS, THEREFORE, RESOLVED AS FOLLOWS:

Part A – Background

1. The requested special land use is a utility grid wind energy system consisting of 56 wind turbines, of 1.8 megawatts each, mounted at the top of tubular steel towers. There would be rotating blades at the top of each tower which are turned by wind in order to generate electricity. These, together with other components, are called wind turbine generators (WTGs). Each tower is about 312 feet high and the radius of the rotating blades is 164 feet, resulting in a total height of about 476 feet when a rotor blade is in the highest position. The towers are about 16 feet in diameter at the base.

2. Ten proposed tower sites are in Summit Township; 46 tower sites and three alternate sites are in Riverton Township.

3. Each wind turbine generator would be connected to the electric high voltage distribution system by means of underground cables and other components. The towers do not have guy wires and would not be fenced.

4. An electrical substation is proposed to be located on a parcel of land in the southwest corner of Section 7 of Summit Township for the purpose of increasing electric voltage and for interconnection with existing overhead electric lines. The electrical substation is not included in this approving resolution and is further addressed in Part G hereof.

5. As authorized by the Zoning Ordinance, the Applicant proposes to establish the area of the special land use as a single pooled unit of land, pursuant to a recorded declaration of pooling or comparable instrument, the effect of which would be to treat all of the lands comprising the use as a single parcel for the purposes permitted under the terms of the Ordinance.

6. In addition to the applicable Zoning Ordinance provisions, the Applicant is subject to the terms of the individual wind energy easement agreements which it has obtained from the owners of lands comprising the proposed use.

7. Consumers has submitted an extensive application for the special land use consisting in part of several large three-ring binders covering aspects of the proposed use and technical, engineering and other data. Reports or studies prepared by technical and other consultants have been submitted. Other interested parties, in addition to the applicant, have submitted extensive written communications, materials, studies and reports. The Planning Commission, its staff and professional consultants, have reviewed and evaluated the submitted materials, a partial list of which is set forth in Exhibit A.

8. The legal descriptions of the lands comprising the special land use are stated in Exhibit B.

Part B – Findings of Fact Under Sections 5.03.8 and 17.70

Based upon the evidence and written and graphic materials submitted, the comments and testimony of the Applicant's representatives, other interested persons and professional consultants and other evidence and factual material, the Planning Commission makes the findings of fact stated in this Part B.

The Planning Commission finds that the lands comprising the special land use are located in the AG Agricultural District, based upon the land descriptions submitted and the County Zoning Map. Accordingly, the Commission finds that under Section 5.03.8 of the Zoning Ordinance, a utility grid wind energy system is an authorized special land use for the lands described in Exhibit B, if approved by the Planning Commission under the applicable ordinance provisions, consistent with applicable provisions of the Michigan Zoning Enabling Act of 2006, as amended.

The Planning Commission makes the following findings under Section 17.70 of the Zoning Ordinance, as to the minimum requirements for the utility grid wind energy systems special land use:

1. Overspeed Controls on Blade-Rotation of Turbines.

(a) Each wind turbine generator (WTG) is a Vestas V100 model with a maximum design rotational speed of 16.6 revolutions per minute. These are certified to conform to the specifications of the applicable International Electrotechnical Commission standard (IEC 61400-01) and include both manual and automatic controls to prevent blade rotation at a speed greater than the maximum permitted.

(b) The overspeed guard on each WTG is activated at 17.3 revolutions per minute, thus preventing blade rotation at any greater revolutions per minute.

(c) The WTGs would be equipped with emergency stops located both in each rotor mechanism and at the base of each tower.

(d) The Applicant's representatives have certified that the rotor and overspeed control design and fabrication conform to good engineering practices, applicable to WTGs of the type and nature proposed to be installed and operated.

2. National and Local Electrical Codes. All electrical components, storage facilities, wire conduit and interconnections with the Applicant's utility system would conform to applicable electrical codes.

(a) The application shows that all electrical systems would be designed and installed to meet or exceed national electrical standards in compliance with the National Electrical Safety Code as adopted by the Michigan Public Service Commission.

(b) As a State-regulated electric utility, the applicant is subject to the requirements of the Michigan Public Service Commission, with respect to all aspects of the special land use within the Commission's jurisdiction. Accordingly, the National Electrical Safety Code applies, rather than local or state electrical codes.

3. **High Voltage Warning Sign.** The special land use would include a visible warning sign of "High Voltage," to be placed at the base of all of the towers included in the use. The letters on the sign would be at least 6 inches high with three-quarter-inch stroke. The sign would include a 24-hour emergency telephone number. The applicant has provided a sample of the sign.

4. **Towers Must be Unclimbable by Design.**

(a) The towers comprising the special land use would be tubular in design, and will have no external ladders or other devices or attachments that would facilitate climbing.

(b) The towers may be climbed by internal climbing devices only, and these are accessible only through an access door which would be kept locked at all times except when in use by the applicant's personnel.

5. **Tubular Towers.** Towers for wind turbine generators may be only tubular towers; the towers comprising the special land use would be tubular only.

6. **Engineering Data.**

(a) The applicant has submitted extensive and detailed engineering data regarding construction of the tower base and other elements of the towers and the WTGs.

(b) The base of each wind turbine tower would be constructed such that upon removal of each wind turbine, tower and foundation, the soil at the base of the foundation would be restored to its original condition to a depth of at least four feet below grade, and the surface of the site would be restored to its original condition.

7. **Up-Wind Turbines.** Up-wind turbines are required. These are wind turbines so designed and installed that the rotating blades face into the wind during operation. The applicant would install and operate only up-wind turbines for the special land use.

8. **Velocity of the Wind Turbines.** Under the terms of Section 17.70, constant-velocity turbines are preferred, but if variable-velocity turbines are used, the applicant must submit additional data as to resulting noise if the rotation of the turbine blades exceeds 25 revolutions per minute.

(a) The Applicant's wind turbines would operate at variable rotations, but their maximum design speed of rotation would be 16.6 revolutions per minute. However, as noted above, the turbines would be equipped with over speed controls that would stop the rotation if it exceed 17.3 revolutions per minute.

9. **Visual Appearance.** The towers and the WTGs must have muted colors, be designed to an industry standard that minimizes visibility and have turbines consistent in their appearance.

(a) Each tower and its rotor blades and nacelle (the rotor shaft, gear box and generator at the top of the tower) would be painted entirely in a soft white, as shown in the sample provided by Vestas, the manufacturer. There would be no other contrasting colors. The color is an industry standard, No. RAL-90-10. The sample submitted to the Planning Commission shows that the color of paint to be used is clearly a muted color. The color of paint of the WTGs and the towers shall match the submitted paint sample.

(b) The color sample submitted by the applicant also demonstrates that the color and paint chosen would not reflect sunlight or result in other glare. Vestas, the provider of the turbines, has reported that there is “no evidence that flashing or glint of reflected sunlight from spinning blades will occur.”

(c) As noted elsewhere below, there will be procedures in place for monitoring compliance after installation of the WTGs, and so any adverse result as to undue reflectivity of the color and paint of the towers and other equipment can be noted and, if necessary, addressed.

(d) The design of the towers, the rotor blades and the nacelles reasonably minimize their visibility. The various components have largely curved or rounded edges and do not have moving or stationary parts that protrude or are unduly noticeable in relation to the overall appearance of the tower and the WTGs. Each tower and its associated equipment has generally the same appearance as all of the other towers.

10. **Advertising Matter.** Advertising is not permitted on the towers or other WTGs.

(a) The application shows that the turbine supplier, Vestas, is contractually prohibited from placing any advertising matter on any tower, nacelle or rotor blades.

(b) The applicant states that it will not place any advertising or other written or graphic image or message on any tower or its associated equipment, other than including its logotype on the required warning signs.

11. **Depth of Buried Electrical Wires.** The electrical wires connecting the turbines and towers to a step-up transformer must be installed at a depth of at least 48 inches below ground. The Applicant’s narrative states that all such electrical wiring will be buried at least 48 inches below grade.

(a) During installation of the facilities, there will be periodic on-site inspections by County representatives, to verify compliance with this and other requirements.

(b) Final, as-built drawing of the entire electrical collection system must be provided to the County, following completion of construction.

12. Impacts on Bird and Bat Species; Study Required.

(a) Volume IV of Consumers' application includes a series of reports and analyses evaluating the environmental impacts of the turbine facilities. These include a Phase I Avian Risk Assessment; a 2009 bird migration and breeding survey; a 2010 bird migration and breeding survey; a synopsis of problems and comments pertaining to bats as affected by wind turbine installations; a survey of bat species in the area of the special land use; a study involving acoustic monitoring of bat activity in the special land use area; a series of maps showing known eagle nests, threatened and endangered species, surface water, wetlands and other natural features in and near the area.

(b) The County's planning consultant reviewed these studies in detail. The authors of some of the studies and surveys were present at work sessions of the Planning Commission, at which time there was further discussion of the analyses.

(c) Generally, the reports conclude that avian-collision deaths as a result of the presence and operation of the System may occur at a rate of about four bird-deaths per year per turbine, and that this number would not generally be regarded as significant. Further, federally-identified endangered or threatened bird species are not likely to breed in the subject area, and as a result the special land use would not impact endangered or threatened bird species. Michigan-identified endangered species are not expected to breed on the site, although some species may be present nearby. The reports conclude, however, that the numbers of collision deaths for such species would not be significant.

(d) The Michigan Department of Natural Resources and Environment has indicated that the System would not impact rare and unique natural features in the vicinity.

(e) The reports indicate that bat deaths as a result of the turbines may result not only from trauma as a result of rotor collisions, but also because bats are susceptible to lung collapse caused by decompression or low pressure that may occur as a result of a near collision with a moving rotor blade. The reports were unable to estimate a likely number of bat deaths.

(f) The reports include several recommendations for the purpose of minimizing adverse impacts on birds and bats. Many of these have been implemented or could be implemented in the completion of the System. These include the use of tubular towers to minimize perching and nesting areas; minimizing lighting to only that required by the FAA; placement of electrical lines underground; and the placement of towers and access roads generally away from areas of natural habitat.

(g) The applicant has committed to a post-construction monitoring plan involving the monitoring of bird and bat fatalities, for the purpose of finding and examining bird and bat carcasses in the vicinity of at least 30 of the WTG sites, and in particular the northern sites closer to the Pere Marquette river area. This will include two years of post-construction monitoring, followed by consultation with the authors of the studies, as to potential measures which can be taken to mitigate any noted adverse results. Such mitigation measures would include operational adjustments or permitted modification of habitat.

13. Certification of Compatibility of Towers with Other Components. A certified registered engineer and factory representative must certify the compatibility of the tower

structure with the rotors and other components of the WTG. Further, the lowest point of the blades must be at least 30 feet above the ground.

(a) The Applicant's system is certified by DET Norske Veritas to conform to the applicable specifications of the International Electrotechnical Commission Standard (IEC 61400-1).

(b) This certification covers the wind turbine generators, the type and design of the towers and the material comprising the towers.

(c) The hub of the blades of each WTG would be mounted on the tower at a height of 312 feet, and the blades have a radius from the hub of 164 feet. Accordingly, the lowest point of any blade when turning would be at least 148 feet above the ground, well in excess of the minimum specified in Section 17.70.

14. **Height and Setback Requirements.**

(a) Wind energy generators are permitted to exceed the height limitations of the zoning district in which they are located, as stated in Section 17.70.14, and subject to other requirements in that subsection. Accordingly, the Applicant's WTGs are not limited by the established height limitation for structures in the AG District.

(b) Wind turbine generators that are located in pooled parcels must be located such that the distance between the center of the base of the tower and any outside boundary line of the special land use is not less than twice the height of the WTG, as measured from the ground at the center of the base of the tower to the highest reach of the blade.

(1) The total height of the Applicant's towers, nacelles and blades in a vertical position is about 476 feet; accordingly, no tower may be located closer than about 952 feet from any unpooled parcel.

(2) The site plan includes 147 plan sheets that illustrate the location of each proposed WTG site; all of the setback distances shown comply with the above-stated isolation-distance requirement.

(c) The same setback distance is required for an unpooled parcel, but is not applicable to this use, as the use involves only pooled parcels.

(d) A wind turbine generator must be located such that the distance between the center of the base of the tower and the nearest point of any existing building designed or used for human occupancy or assembly is not less than twice the height of the wind turbine as measured from the ground at the center of the base of the tower to the highest reach of the blade.

(1) The site plan for each of the Applicant's WTGs shows that in most cases this requirement is complied with.

(2) The site plans for WTGs No. 9 and No. 54 show "farmhouse ruins" located within the setback for occupied structures. However, the Applicant has provided photographs showing that these so-called farmhouse ruins are so deteriorated that they could not

be lived in, in their current condition. One of the provisions of the Applicant's easement agreements would prevent the grantor of any such easement from taking action to undermine the Applicant's compliance with the zoning ordinance. Thus, even though these farmhouse ruins may once have been designed for human occupancy, they cannot be occupied currently, and in view of the easement agreements executed by the owners, they could not be prepared to again become livable.

(3) In some cases, the WTG site plans show some unidentified structures. However, the Applicant has confirmed in writing that such structures are either out-buildings or other very minor structures such as animal shelters or hunting blinds.

(e) A wind turbine generator may not be located such that the distance between the center of the base of the tower to the nearest point of any existing building or structure that is not designed or used for human occupancy or assembly or road right-of-way is not less than one and one-half times the height of the turbine generator, as measured from the ground at the center of the base of the tower to the highest reach of the blade.

(1) Based on a review of the Applicant's site plans for each of the WTGs, this requirement is complied with in most cases. As to the cases in which the requirement was not complied with, Consumers has sought and obtained a variance from the County Zoning Board of Appeals so as to permit the placement of the applicable WTG at a lesser setback distance than would otherwise be required. Such a variance with respect to a special land use is within the jurisdiction of the Zoning Board of Appeals under the terms of Section 24.05.1 of the Zoning Ordinance. The variances obtained by the Applicant in this regard are listed below.

(2) A communication tower guy wire anchor is located within the setback for unoccupied structures around WTG No. 14. On February 16, 2011, the County Zoning Board of Appeals approved Variance No. 14531 to permit a 147-foot variance to allow placement of this WTG 567 feet from the communication tower guy wire anchor.

(3) An electrical transmission tower and transmission lines would be located within the setback for unoccupied structures around WTG No. 43. On February 16, 2011 the Zoning Board of Appeals approved Variance No. 14532 to permit a 47-foot variance and allow placement of this WTG 667 feet from an electrical transmission tower and a variance of 94 feet to permit placement of the WTG 620 feet from electric transmission lines.

(4) An electrical transmission tower and transmission lines are located within the setback for unoccupied structures around WTG No. 44. On February 16, 2011, the Zoning Board of Appeals approved Variance No. 14533 to permit a 33-foot variance and allow placement of this WTG 681 feet from an electrical transmission tower and a variance of 131 feet to allow placement of the WTG 583 feet from electric transmission lines.

(5) An electrical transmission tower and transmission lines are located within the setback for unoccupied structures around WTG No. 55. On February 16, 2011, the Zoning Board of Appeals approved Variance No. 14534 to permit a 70-foot variance and allow placement of this WTG 644 feet from an electrical transmission tower and a variance of 52 feet to allow placement of the WTG 662 feet from electric transmission lines.

(6) Two other WTG sites involve features or unoccupied structures or facilities that are subject to terms and conditions imposed below in this resolution.

(A) The site plan for WTG No. 9 shows an out-building that is a “maple sugar shack” on Parcel No. 011-003-019-00, and the application includes the agreement of the owner to have the structure removed by the Applicant. As required below, the structure must be removed before WTG No. 9 may be installed.

(B) The site plan for WTG No. 41 shows that the proposed tower location may conflict with a pipeline easement owned by Occidental Chemical Corporation. The Applicant has agreed to re-locate the proposed tower so that it would be about 80 feet further to the west, and such a requirement is included below in this resolution.

(C) There are two natural gas transmission lines located within the lands comprising the special land use. The Applicant has met with representatives of DTE, MichCon and Omimex, which own and/or operate these pipelines, and has agreed to remove proposed WTG No. 7, and replace it by activating WTG No. 57A, and the Applicant has also committed to re-locating WTGs Nos. 10 (by 36 feet west, to create about 181 feet of separation), and 23 (by about 95 feet northwest, to create about 373 feet of separation), to provide greater isolation between these towers and the pipelines. If there are any above-ground facilities associated with the pipelines, these must be shown on the site plans and must be located outside a distance from the towers that is at least as great as one and one-half times the total height of the tower and extended blade. An appropriate condition is included below.

(f) No wind turbine generator may be located such that the distance between the nearest point of the blade, while in rotation, and the nearest boundary line of any individual land parcel within the pool parcel is less than 50 feet, though the Planning Commission may approve a lesser setback distance if written consents for such lesser distance are obtained from the owners of all lands located, in whole or in part, within one rotor-diameter of the WTG, measured from the center of the base of the WTG.

(1) Forty-two of the proposed tower sites and alternate sites are located less than one rotor-diameter plus 50 feet from an adjoining pooled property. In all of these cases, the consent of the adjoining property owner has been obtained; those parcels are within the pooled unit.

(2) The purpose of the waiver provision is to allow the placement of facilities in such a way that farmers may limit disturbance to existing crops and orchards by consenting to the placement of turbines closer to parcel lines, rather than at locations that might disrupt existing crops.

(3) The Applicant states that the locations of the WTGs with respect to which waivers were obtained are necessary in order to minimize damage to crops and interference with farming operations, to comply with other requirements as to minimizing of noise or shadow impacts on nearby properties and to take advantage of the available wind resource.

(4) Under the terms of Section 17.70.14.f, the Planning Commission has considered the technical needs of the Applicant, the feasibility of alternate locations, the

proximity of nearby buildings and structures and the potential for adverse impacts, and based thereon, the Planning Commission concludes that the adjusted placement of the described tower sites, consented to by the appropriate property owners, complies with the provision permitting the Planning Commission to approve a lesser setback distance.

(g) Wind turbine towers and generators must fully comply with Article XV of the Zoning Ordinance, the Airport Overlay District. The application materials document approval of all tower locations from the Federal Aviation Administration, the Michigan Aeronautics Commission and the Mason County Airport Overlay Zone.

15. Certification of Compliance with Construction and Installation Standards.
A registered engineer and authorized factory representative must certify that the construction and installation of the System meets or exceeds the manufacturer's construction and installation standards.

(a) As noted above, the design of the System has been certified by the manufacturer as compliant with the applicable specifications of the International Electrotechnical Commission Standard.

(b) As stated below in this resolution, it is a condition of approval that the Applicant provide similar certification as to construction and installation, by a qualified engineer satisfactory to the County.

16. Maintenance and Operation.

(a) A wind energy system must be kept in good working order or it must be removed by the owner. A wind energy system or any part thereof that has not produced electrical energy for 12 consecutive months is deemed to be abandoned, though extensions and other relief are available.

(b) To verify that the System is being maintained in good working order, a condition is included below requiring that the Applicant submit periodic reports, at least annually, to the County, providing detail as to routine, scheduled and unusual maintenance activities.

(c) To ensure that an abandoned wind energy system is removed, a performance bond or letter of credit in a sufficient amount to cover the entire cost of removal is to be submitted by the Applicant to the County prior to approval of the special land use. The Applicant has presented an engineer's estimate that the cost of decommissioning the entire System and restoring all of the sites would be \$9,200,000. The County's engineering staff has reviewed the estimate and concludes it to be accurate. A condition has been included below, requiring that the Applicant submit to the County a performance bond or letter of credit in the amount of \$9,200,000, to cover the cost of potential decommissioning of the entire System, prior to issuance of permits pursuant to the special land use.

17. Noise Levels. The A-weighted equivalent sound level measured at the property line of an unpooled (single) parcel on which there is an occupied building or dwelling may not exceed 45 dBA. If the unpooled parcel does not have an occupied principal building or dwelling, then the 45 dBA sound limit may be exceeded at the property line, but if an occupied principal

building or dwelling is later built on the unpooled parcel, the sound level may not then exceed 45 dBA measured at the nearest wall of the occupied building or dwelling located on the unpooled parcel.

(a) In a pooled parcel, the 10-minute A-weighted equivalent sound level measured at the wall of an occupied building nearest the wind turbine or turbines may not exceed 55 dBA.

(b) The Applicant has submitted the required analysis which demonstrates that the System will not generate sound impacts in excess of the 45 dBA standard on any unpooled property. The County retained Epsilon Associates, Inc. to perform an independent review of the analysis submitted by the Applicant. That report supported the conclusions included in the Applicant's submittal.

(c) As described below, post-construction monitoring is required; accordingly, there will be subsequent verification as to whether the maximum noise levels are being complied with.

18. **Lighting.** Any lighting required by the FAA must be of the lowest intensity and of the slowest pulse permitted.

(a) The application includes the FAA lighting requirements and states that lighting on the towers will comply with all such requirements. The lighting will consist of red pulsing, synchronized lights, but not strobe-type lights. About 44 of the towers will be lighted.

(b) The red pulsing lights are normally regarded as least offensive to people generally. Other expert opinion received by the Commission indicates that night-migrating birds are less likely to be attracted to red pulsing lights, as compared to steady-state illumination.

19. **Pooling of Parcels.** The Applicant is permitted to include two or more parcels of land in a pooled unit for purposes of the special land use, under the terms of an approved declaration of pooling and in compliance with the detailed requirements stated in Section 17.70.19.

(a) As noted above, the Applicant's System consists of a pooled unit, to be established under the terms of a declaration of pooling, subject to approval by the County and then recorded with the Register of Deeds.

(b) The Commission has determined that all of the wind energy easement agreements obtained by the Applicant, covering the 309 pooled parcels, are described in the application and included on the site plans.

(c) Further, the Commission has determined that each parcel included on the site plan is subject to a wind energy easement agreement obtained by the Applicant. The submission and recording of a declaration of pooling, approved by the County, is required below as a condition of this resolution.

20. **Signal Interference.** A wind energy system may not be installed in any location where its proximity with existing fixed broadcast transmission, or reception antennas for AM or

FM radio, 911 emergency systems, Internet broadband, satellite reception, off-air television or wireless phone or other personal communications systems would produce interference with signal transmission or reception.

(a) The application must include a licensed microwave search and other analysis, and also an electromagnetic interference mitigation plan.

(b) The Applicant has provided two analyses by Comsearch to identify both microwave telecommunication systems and other communication towers in the area of the use. A worst-case Fresnel zone analysis is included, illustrating two such zones extending southeast from the Ludington area through the proposed System lands. All proposed towers are located outside the two identified microwave paths, but WTG No. 10 appears to be relatively close to the northerly zone. The Applicant's analysis also identifies eight other telecommunication towers in the area.

(c) Further, the Comsearch analyses state that land mobile radio and mobile telephone service are typically "not degraded by close proximity to wind turbines so these items should not be a concern. The conversion to digital service for off-air television stations has reduced the potential for wind turbines to affect TV reception."

(d) The Applicant has stated that if adverse signal impacts should result from the operation of the System, the Applicant will confer with the affected parties and take action to mitigate such impacts, and a condition to this effect is included in this resolution.

21. **Shadow Flicker.** Shadow flicker means the repetitive casting of shadow as a result of the turning blades of the WTGs when there is sufficient sunlight to cause shadow. Such repetitive shadow flicker, if unlimited, may have adverse effects on nearby residents and residential uses.

(a) A shadow flicker study is required, to ascertain the duration and location of shadow flicker on unpooled parcels. The model study area must include all land extending a minimum of ten rotor-diameters in all directions beyond the exterior boundaries of the pooled parcels. The model must comply with other specified requirements.

(b) The shadow flicker measured at the nearest external wall or walls of an occupied building or dwelling located on an unpooled parcel may not have a duration greater than 10 hours per year. If shadow flicker is created by more than one WTG as to any property, the cumulative total of all shadow flicker for that property may not exceed 10 hours per year. Mitigation measures for each location receiving excess shadow flicker are required.

(c) The Applicant prepared and submitted a shadow flicker study in compliance with ordinance requirements. The study included the required 10 rotor-diameter distances.

(d) The Applicant's report indicates that out of more than 600 occupied dwellings that were studied, the greatest shadow flicker impact identified would be about 36 hours per year for one pooled property. If no mitigation measures were taken, 40 homes on unpooled parcels would likely experience shadow flicker for more than 10 hours per year,

though these projections did not take into account whether the dwellings might have some obstruction such as landscaping or structures that might moderate the effect of shadow flicker.

(e) The Applicant has stated that if feasible the System would be equipped with automatic shadow flicker management equipment to monitor shadow conditions and to maintain a running log of the hours of shadow effect on each receptor property, so as to ascertain whether the 10-hour maximum would be exceeded. However, it is uncertain as to whether such equipment is reasonably available.

(f) The Applicant has stated that the primary measure used to mitigate excessive shadow flicker will be revised operational procedures which could include taking any offending turbine out of service when the ten-hour maximum has been reached for any relevant property and during the time when there is sufficient sunlight to create shadow impacts. Further, with the approval of the affected owners and the Planning Commission, other mitigation measures could be employed.

(g) This resolution includes a requirement that the Applicant comply at all times with the 10-hour per year maximum duration of shadow flicker on occupied dwellings or occupied buildings on unpooled parcels. Mitigation requirements are also included, in any instances where the 10-hour maximum limit is exceeded.

22. **Roads.** The Applicant's use of roads and other lands included in road rights of way for the construction and installation of the System must comply with the requirements of the Mason County Road Commission, and a condition to such effect is included herein.

23. **Performance Review.** Section 17.70.23 requires a detailed performance review of the special land use on a three-year basis or at other possible intervals. Such review must cover a variety of issues and potential impacts. The Applicant is required to cooperate in all required performance reviews and to complete any required actions as a result thereof, and a condition thereon is included in the resolution.

24. **Complaint Resolution.** Section 17.70.24 contains detailed procedures for resolutions of complaints as a result of the presence or operation of the System. The Applicant is required to comply fully with the established procedures for such complaint resolution, and a condition thereon is included below.

25. **Automatic Fire Suppression Systems.** As requested by the Commission, Consumers has presented further information regarding the fire suppression systems within the nacelles (as noted above, these are the structures at the top of the towers that are separate from the blades, and consist of the rotor shaft, gear box and generator). In this regard, Consumers has submitted an excerpt of its agreement with Vestas, the provider of the equipment, documenting that the nacelles will be equipped with automatic heat and smoke detection and alarm systems and also with automatic fire suppression systems. In addition, fire extinguishers will be included in the nacelles and at the base of the towers.

(a) The information from Vestas further indicates that the alarm systems will be connected to the turbine control systems, and if they are tripped by the alarm systems, the turbines will be stopped automatically.

26. **Ice Throw.** The Commission has noted that if during cold weather ice forms on the rotor blades as they are moving, there may be a risk that centrifugal force would throw the ice off the blades, creating a hazard for persons who may be in the vicinity. Accordingly, Consumers was requested to present further detail regarding possible breaking-off of accumulated ice from the turbine blades.

(a) Consumers indicates that currently available systems utilize ice sensors that have an ultrasonic vibrating probe that detects ice accumulation and its estimated thickness on the turbine blades. The manufacturer, Vestas, indicates a more advanced system is currently being tested and that may be available at a future time. Consumers indicates that once specifications for the more advanced system are available, they will determine the best solution for sensing the presence of ice build-up on rotor blades.

(b) Consumers also indicates that there is an operational technique commonly used in the industry in dealing with ice build-up on the blades. In such situations, the operator starts and stops the turbine so as to break free any ice that may have accumulated. Consumers indicates that a likely approach to addressing icing conditions would be a visual inspection of the equipment during times when icing is likely to occur. For inspection during nighttime conditions, spotlights might be used.

(c) This resolution includes a condition that the System must be equipped with ice sensors that detect ice accumulation and the estimated thickness of ice on the turbine blades, or other automatic equipment that will determine when hazardous ice is present on the rotor blades, so that rotation can be stopped until the ice melts or is otherwise removed.

27. **Potential Contaminants.** Because the nacelle of each tower is a large piece of mechanical equipment, it will include lubricating oil, hydraulic fluid and other potential contaminants. The Commission asked that Consumers provide further information on possible contaminants and procedures to prevent release of any such contaminants into surrounding soil or groundwater.

(a) Consumers has responded stating that they will develop a Spill Prevention Control and Counter Measures Plan for the System, that will comply with the requirements of the Environmental Protection Administration (EPA) for oil-filled operational equipment. The Plan will be certified by a professional engineering consultant, as is the standard practice for Consumers with respect to its generating facilities.

(b) Consumers indicates that each WTG would contain up to 415 L of gear oil, 315 L of hydraulic oil and 70 L of coolant, for a maximum liquid volume of 800 L, or approximately 200 gallons. The transformers in each nacelle are of the dry type and do not include oil or other liquid.

(c) This resolution includes a condition that Consumers provide its written Spill Prevention Control and Counter Measures Plan, to the satisfaction of the Planning Commission, together with an engineer's certification as to the Plan's compliance with EPA requirements.

Part C – Site Plan for the Special Land Use

Under the terms of Section 16.03.3.d, a site plan in compliance with Article XVIII of the Ordinance is required for all special land uses. The elements of a required site plan are stated in Section 18.03. The Standards under which the Planning Commission may approve a site plan are stated in Section 18.05.

The Planning Commission has reviewed the site plan and associated materials submitted by the Applicant, the site plan consisting of the combined site plans last revised as stated in Exhibit A attached hereto. Based upon such examination, the Planning Commission makes the following findings under Section 18.05, with respect to the Applicant's site plan:

1. **Arrangement of Structures.** A site plan must show that buildings, parking areas, signs and other features are designed to minimize adverse effects on development users and the occupants of adjacent properties.

(a) The site plan and other submitted materials show that the setback requirements of Section 17.70 are complied with, or that appropriate variances have been obtained from the Zoning Board of Appeals, as noted above.

(b) As noted above, the site plan includes a total of 147 plan sheets that illustrate the location of each proposed WTG site. These sheets show that the applicable setback distances are complied with, either as specified in Section 17.70 or as authorized by the above-stated variances.

2. **Natural Features.** A site plan must demonstrate that as many natural features as possible have been retained, especially if they would provide a buffer between adjoining properties, or assist in preserving the general appearance of the neighborhood or help to control soil erosion or storm water drainage.

(a) As noted above, Volume IV of the Consumers application presents findings pertaining to sensitive environmental lands or features. Access roads and underground electrical circuit construction will affect existing land forms somewhat, but the special land use is located in an area already modified to support farming, and so these land changes are not entirely out of character for the area. The lands involved are no longer forests or other unspoiled natural areas.

(b) Each tower installation must comply with the requirements of the County Drain Commissioner as to soil erosion and sedimentation.

(c) Some bird and bat mortality as a result of the operation of the System can be anticipated, as noted above, although threatened or endangered species are unlikely to be affected.

(d) It is noted that this natural feature standard refers to the retention of as many natural features "as possible." As noted above, there will be post-construction monitoring and potential mitigation of adverse effects, if required.

(e) Some road turning-radii will be enlarged to accommodate turning movements of the trucks carrying turbine parts to the various sites, for the construction of the System. Most of the filling and tree removal required for these enlarged corners will occur within the existing road right-of-way, however. Details of this activity will be outlined in the road agreement to be executed by Consumers and the Mason County Road Commission, under applicable provisions of the Zoning Ordinance. Tree removal as a result of construction of the System should occur on properties on which an easement has been granted or with other concurrence on the part of property owners, if any such modifications are outside of the road right-of-way, and a condition to this effect is included below.

3. **Vehicular and Pedestrian Traffic.** The site plan must conform to the driveway, traffic and access standards of the Michigan Department of Transportation and the Mason County Road Commission. The plan must show that there is a proper relationship between existing and proposed roadways and parking areas, and that the safety and convenience of pedestrian and vehicular traffic has been assured.

(a) As noted above, Consumers and the Mason County Road Commission must enter into a road agreement under the terms of Section 17.70.22. The Applicant must also obtain appropriate permits from the highway authorities having jurisdiction, as to heavy or oversized loads to be carried over the public streets. There should be communication with local residents as to the location of specified haul routes and temporary construction disruptions, and a condition thereon is included below. There is no significant pedestrian traffic in the special land use area.

4. **Public Safety.** A site plan must fully conform to the applicable fire safety and emergency vehicle access requirements of the International Building Code as adopted by the State of Michigan and applicable in Mason County. The Applicant's proposed automatic fire suppression systems and related equipment and operations, described above, show compliance with this requirement.

5. **Storm Water Drainage.** A site plan must comply with applicable requirements of the Mason County Drain Commissioner.

(a) It is a condition of this resolution that the Applicant obtain from the County Drain Commissioner all permits required by law and regulation for any activities under the special land use within the jurisdiction of the County Drain Commissioner.

6. **Erosion Control.** A site plan must show compliance with the Mason County Soil Erosion and Sedimentation Control Ordinance.

(a) It is a condition of this resolution that the Applicant obtain from the County Drain Commissioner a soil erosion and sedimentation control permit under applicable law and regulations.

7. **Hazardous Waste Management.** A site plan must show that reasonable precautions will be taken to prevent hazardous materials from entering the environment. The Applicant's submissions with respect to potential contaminating fluids within the nacelles and other equipment demonstrate compliance with this requirement.

8. **Public Health.** A site plan must comply with applicable requirements of the Michigan Department of Community Health and the Mason County Health Department. The Commission has determined that there are no public health standards pertaining to this application and within the jurisdiction of the Michigan Department of Community Health or the Mason County Health Department.

9. **Compliance with Statutes.** A site plan must show compliance with applicable state and federal laws.

(a) Applicable federal standards include the FAA requirement for lighting of the towers. As noted above, 44 of the towers will have red pulsing lights that are synchronized.

(b) The System must also comply with the requirements of the Michigan Public Service Commission for all matters relating to the transmission and distribution of the generated electricity. The regulations of the Public Service Commission govern the transmission lines, substations and the transmission of electricity into the utility grid system for distribution to customers. A condition requiring compliance with FAA, Public Service Commission and other federal and state agencies having jurisdiction is included in this resolution.

10. **Separation of Parking Areas, Service Drives, etc.** Given the nature of the System and the various specialized components thereof, such requirements are not generally applicable.

(a) The applicant shall arrange for sufficient off-street parking area where needed for construction equipment and thereafter for vehicles utilized in operation and monitoring of the System, and a condition thereon is included below.

(b) The site plan shows so-called “laydown areas” to be used for construction and related activity. Consumers indicates that these areas are under its ownership. There may be an operations and maintenance building, and if so, it shall be subject to further approval by the Planning Commission and shall include sufficient off-street parking area.

(c) It is expected that there will be temporary facilities within the special land use area during the period of construction, such as storage facilities, a construction office and the like.

11. **Lighting.** A site plan for a non-residential use that includes outdoor lighting must have lighting that is night-sky compliant. This type of lighting must be installed so that light is generally confined to the development site and that there is no blinking or flashing of light.

(a) As noted above, 44 of the wind turbines will have red pulsing light at the top of the towers, but this is required by the FAA, under applicable federal law, so that the towers that are sufficiently visible for airplane pilots, in the interest of safety.

(b) Any additional lighting on the towers, such as over the door leading to the interior of the tower must comply with the requirements of the nighttime sky standard, and a condition thereon is included below.

12. **Acceleration and/or Deceleration Lanes.** These may be required by the Planning Commission, but are not applicable for this special land use, given its nature and operations. Further, the use is not located in the Highway Overlay District.

Part D – Conclusions Based on Findings Under Sections 17.70 and 18.05 of the Zoning Ordinance

In this resolution, the Planning Commission has made findings of fact under Section 17.70, as stated in Part B, and with respect to the Applicant’s site plan, as stated in Part C.

Based upon these findings, the Planning Commission determines that the minimum requirements of Section 17.70 and 18.05, as applicable to the special land use, have been satisfied or would be satisfied upon compliance with the applicable conditions imposed under Part G of this resolution.

Part E – Findings and Conclusions Under Section 16.05

In considering whether a requested special land use shall be approved, the Planning Commission must consider not only the required minimum requirements for the use, in this case as stated in Section 17.70, but also the general standards for approval of a special land use as stated in Section 16.05.

In accordance with Section 16.05, the Commission has reviewed the particular circumstances and facts applicable to the requested special land use, and makes the findings and reaches the conclusions described below as to the various standards for approval stated in that Section.

1. The special land use must be in accordance with the goals and objectives of the Mason County Comprehensive Plan.

(a) The Mason County Comprehensive Plan, adopted in August 2006, does not directly address alternative energy facilities, such as the requested utility grid wind energy system. Nevertheless, the Plan seeks the protection of natural resources, as shown on page 2-6 of the Plan. In this regard, a renewable energy facility, such as a wind energy system, protects natural resources by reducing the need to develop fossil fuel sources and by reducing emissions.

(b) The future land use map shown in the Comprehensive Plan designates most of the land in the surrounding area as agricultural. These future land areas are intended primarily for farming activities. Further, under Section 5.02 of the Zoning Ordinance, a primary permitted use of the Agricultural District, in which the special land use is located, is farming and associated uses. The special land use would not inhibit or prevent farming in the extensive areas of the pooled unit in which towers, access roads and the like are not located. Property owners can continue to farm, and presumably will continue to farm, in those extensive areas not occupied by towers or other components of the special land use. Thus, the special land use is compatible with existing farming operations.

(c) The Comprehensive Plan supports sustainable land uses. The use of wind as a renewable energy source for the generation of electricity is a sustainable land use.

(d) The Comprehensive Plan, in its support of productive agriculture, does not counsel against other nearby uses that are constructed and operated for the public good such as public utility facilities. Indeed, Section 5.02 of the Zoning Ordinance includes public utility facilities, wireless communication antennas and on-site use wind energy systems as permitted uses. The agricultural district already includes public utility facilities that are intended to serve not only the immediate agricultural areas but the larger community at greater distances away. Such uses are not regarded as incompatible with agriculture, by either the Zoning Ordinance or the Comprehensive Plan.

(e) The goal of the Comprehensive Plan to support commercial agriculture is also supported by the wind energy special land use, in that the easement agreements entered into by property owners and the applicant provide supplemental income to farm owners, thus helping to sustain viable farming.

2. A special land use must be designed, constructed, operated and maintained in harmony with the existing or intended character of the general vicinity; the use may not change the essential character of the area in which it is proposed.

(a) As noted, the special land use would be located on lands zoned in the AG Agricultural District. This District is used primarily for farming purposes and by very low density residential development. Section 5.01 of the Zoning Ordinance states that the purpose of the AG District is to preserve and encourage “farming, dairying, forestry operations and other such rural-type activities.” This provision also notes that “adequate food supply is essential to the health and welfare of the County and elsewhere.”

(b) As noted above, existing farming can continue within the pooled unit, except where towers and other system features are located; future farming areas may also be established. In this respect, the special land use is very much unlike a large residential development, in which significant agricultural land would be taken out of cultivation for the sake of constructing homes, paved streets and other amenities of residential plats or site condominiums.

(c) While the development of the wind energy system will result in the construction and use of wind energy towers which were not located previously in the AG District, that District already has a large number of electrical transmission towers and elevated high voltage electric lines, along with telecommunications towers. Indeed, the AG District, and similar districts elsewhere, commonly include public utility installations of considerable height, easily noticed, for the transmission of electricity and communications. These installations, while located in and among agricultural lands, are not incompatible with continued agricultural use.

(d) While the wind turbine generators will have effects as a result of sound and shadow flicker, these effects are largely confined to the pooled parcels, as to which property owners have granted easements, or such effects can be sufficiently mitigated by the conditions of approval included in this resolution.

(e) The generally open-lands character of the area of the special land use will remain, and can continue to productively coexist with the proposed wind turbine generators.

(f) Like other tall public utility facilities in the AG District, the wind turbine generators are so designed, placed and operated that they would achieve a harmony with the continued use of the surrounding agricultural lands. While the wind turbine generators will be new structures within the AG District, they will not change the essential character of the area, for that area already includes tall public utility facilities that are not incompatible with farming and low density residential uses.

3. A special land use may not be hazardous or disturbing to existing or future permitted uses in the same general vicinity and in the community as a whole.

(a) The requirements of the AG District, in which the special land use would be located, and other applicable provisions of the Ordinance, are intended to protect adjacent or nearby land uses by establishing isolation distances and other protections between various kinds of uses. For example, all parcels within the District, as in other zoning districts, have required minimum setbacks for buildings and other structures, from property lines, public streets and the like. These setbacks are intended in part to assure that various types of uses can be coexist without disturbance or interference among them.

(b) The special land use, as proposed and under the conditions included in this resolution, would similarly establish isolation distances and other margins of safety and repose so as to avoid any resulting interference or disturbance of other uses. The properties nearest the WTGs are those most likely to be affected, and in all cases the owners of the affected lands have signed easement agreements with the Applicant, consenting to the presence and operation of the towers and other features of the use.

(c) There may also be some nearby properties that would be affected by potential impacts such as intermittent noise or shadow flicker, but as noted above, the conditions of approval are intended to eliminate or moderate these effects.

(d) The many conditions included in this resolution will obviate hazardous or disturbing conditions. These conditions include, among many others, requirements as to setbacks, potential signal interference, the carrying of sound, shadow flicker, protection against potential fire emergency, potential ice throw from tower blades, potential contamination by lubricating liquids and a variety of other potential impacts.

4. A special land use must be served adequately by essential public facilities and services, including streets, police and fire protection, storm water drainage, refuse disposal, water and sewage facilities and other services.

(a) The System must be designed, constructed and maintained in accordance with applicable requirements of the Michigan Public Service Commission, which regulates the applicant as an approved public utility. The International Electrotechnical Commission requirements must be complied with, as well as those of the County Road Commission, the Michigan Department of Transportation, the County Drain Commissioner and other authorities having jurisdiction.

(b) The special land use will not require public water or sewer service, refuse disposal, nor will it create demands on the local school system.

(c) The nacelles will be equipped with automatic fire suppression systems to guard against fire emergencies.

(d) The standards of state and international review agencies must be complied with in the construction and operation of the facilities.

5. A special land use may not create excessive additional requirements at public cost for facilities and services and may not be detrimental to the economic welfare of the community.

(a) Because the WTGs will be equipped with automatic fire suppression systems, the use will not create excessive additional requirements for public fire protection equipment or services.

(b) Entrance to the towers will be locked at all times except when in use by the Applicant's personnel, and accordingly there will not be excessive additional requirements for law enforcement services by the County Sheriff's Department.

(c) The existing County road system will be adequate for construction and operational vehicle traffic. All such traffic will be subject to the load limit requirements of the County Road Commission and, with respect to state highways, the Michigan Department of Transportation. The above-stated required agreement between the Road Commission and the applicant will impose other duties upon the Applicant with respect to public roads and the access therefrom.

(d) The special land use would not be detrimental to the economic welfare of the community, for the use will provide both construction and permanent employment in the County and will add significant tax base, thus adding to local government revenues which will be used to benefit the public.

6. A special land use may not involve uses, activities, processes, materials, equipment or conditions of operation that will be detrimental to any person, property or the general welfare because of excessive production of traffic, noise, vibration, smoke, fumes, glare or odors.

(a) The requirements of Section 17.70 and various conditions included in this resolution will avoid detriment resulting from the above-described sources. The use will not result in vibration, smoke, fumes, glare or odors. In operation, the use will not involve excessive vehicle traffic; during construction, there will be truck traffic and the traveling of other construction vehicles, but only in accordance with County road requirements.

(b) Construction traffic will likely generate dust and dirt, but mitigation measures are required by the conditions of this resolution.

(c) As noted above, the strict 45 dBA requirement will avoid excessive noise. The significant required isolation distance for towers will also work to avoid noise and other impacts. As also noted above, shadow flicker on unpooled parcels may not exceed 10 hours in an entire year.

(d) The Applicant has provided acoustic modeling to assess adverse effects resulting from potential low frequency sound or vibration resulting from operation of the proposed WTGs. If post-construction monitoring discloses adverse impacts from low frequency noise or vibration, further study and potential mitigation may be required under Section 17.70.17.d, and a condition thereon is included in this resolution.

(e) Post-construction monitoring is required, to assure compliance with the required measures designed to avoid or moderate adverse impacts.

7. A special land use must have the effect, insofar as practicable, of preserving the natural environment by minimizing tree and soil removal, maintaining adequate setback from water courses and by making topographic modifications which maintain maximum harmony with adjacent areas.

(a) Volume IV of the Consumers application includes findings relating to sensitive environmental lands and features. The construction of access roads and underground electrical conduit installation will affect existing land forms to some extent, but as noted above, the special land use area is no longer in its natural state, but has long been modified for productive agriculture and low density residential uses. Thus, the installation of access roads and underground conduit is not out of character; the area already includes various underground pipelines for natural gas and the like.

(b) The removal and accumulation of soil is subject to a required soil erosion and sedimentation control permit.

(c) While some bird and bat mortality can be expected, the design features of the use conform to recommendations for the minimizing of this effect.

8. A special land use may not impede the normal and orderly development and improvement of surrounding property for uses permitted within the Zoning District.

(a) As noted, the primary purpose of the AG District is to provide a significant area for farming. The special land use and its operation will not impede the continuation of existing farming, and indeed may strengthen farming activities by providing supplemental income to farmland owners.

(b) Residential development in the vicinity of the use is of very low density. The effects of the special land use on this development pattern is mitigated by the substantial required setback distances for the towers, and by the strict noise and shadow flicker and other limitations.

(c) While single-family dwellings are permitted in the District, they are subject to specific approval requirements under Section 3.38 of the Zoning Ordinance. Under this provision, a single-family dwelling is required to be approved by the Zoning Administrator before the issuance of any building permit in the AG District. Indeed, that section specifies that the Zoning Administrator may require an applicant “to sign a form that acknowledges receipt of information pertaining” to the intent of the zoning district which, as noted above, is primarily for agriculture and for farm dwellings.

(d) Despite the presence of the special land use, residents may still construct a non-farm dwelling or a farm dwelling in the area. There are no additional setbacks that would apply to new structures on unpooled parcels in relation to an existing wind turbine generator. Further, Section 17.70 provides further protection for shadow and sound impacts for any dwelling constructed after the System is installed.

(e) The development patterns existing within and near the special land use area are agricultural and low-density residential in nature, and the special land use would be consistent with those uses, and future similar uses, as well as supportive of farming activity generally.

(f) Each wind turbine generator would be located at least twice its maximum height, with the rotor in a vertical position, from the nearest property line of a property not included in the pooled unit.

(g) The stringent standards of Section 17.70 as to noise limits and shadow impact will avoid detrimental effects on development and improvement of surrounding and nearby property. There are required post-development monitoring measures, so as to assure compliance with minimum standards and the implementing of any needed mitigation measures.

9. A special land use must comply with applicable requirements of the Ordinance, including Article 21, covering access management and the Highway Overlay District. The special land use property is not included in the Highway Overlay – Access Management District, and accordingly this standard is not applicable to the proposed use.

Accordingly, based on its review of the particular circumstances and facts applicable to the requested special land use, in relation to the above-stated general standards and requirements for special land uses, the Planning Commission determines that the use proposed and the subject property comply with all of the standards and requirements of Section 16.05.

Part F – Approval of Special Land Use and Site Plan

Subject to the terms, conditions and requirements of this resolution, the Planning Commission APPROVES the requested utility grid wind energy special land use and the site plan submitted by the Applicant for the special land use.

This approval is given under the terms of Section 16.05 of the County Zoning Ordinance, with respect to the standards and requirements for approval of a special land use; Section 18.05, with respect to approval of site plans; Section 17.70, with respect to the minimum requirements for an approved utility grid wind energy system special land use; Section 5.03.8, designating a utility grid wind energy system as an available special land use in the AG Agricultural District; Sections 24.04 and 24.05.1, granting jurisdiction to the Zoning Board of Appeals to consider and approve the variances obtained by the applicant with respect to the placement of certain of the wind turbine generators included in the special land use; and other applicable provisions of the County Zoning Ordinance. This approval is based as well on applicable provisions of the Mason County Comprehensive Plan of 2006 and the future land use map thereof. Further, this approval is based on a review of minutes of various Planning Commission work session meetings including those on May 17, June 2, June 9 and June 21, 2011. The Commission has also

convened further meetings, of extensive duration, on June 30, July 5 and July 7; public comment was invited and received at each of these meetings.

Further, this approval of the special land use and the site plan is based upon all of the following:

The application for the special land use submitted by Consumers, together with the extensive exhibits, supporting materials, reports, studies, correspondence and other written and graphic materials submitted by Consumers and the oral comments received from their representatives and various public meetings in the public hearing.

The site plan submitted by Consumers for the special land use, as it is required to be corrected or amended by the terms of this resolution.

The oral comments received from other interested parties and members of the public at many public meetings held by the Planning Commission with respect to the requested special land use and the extensive oral comments received from interested members of the public at the Planning Commission hearing on the special land use on June 28, 2011 and at other meetings of the Commission.

The extensive written and graphic materials received from interested members of the public and their representatives and consultants. These materials include, among many others, correspondence, affidavits, written opinions of consultants, reports and studies, research materials, petitions and other written and graphic materials.

Other documents, materials and submittals, including those received orally, in writing or graphically and in other formats, including compact discs, all of which, together with the matters noted above, comprise the record of the Planning Commission's proceedings in consideration of the special land use. The Planning Commission determines, upon evaluating all of such materials and submittals, that taken as a whole they comprise sufficient factual and other evidence upon which to base the Commission's approval of the special land use, subject to the Applicant's full and timely compliance with all of the terms and conditions herein.

Part G – Terms and Conditions of the Special Land Use

1. Generally.

(a) The special land use shall be designed, developed, constructed, installed and operated only in accordance with the site plan, consisting of the combined site plans last revised as stated in Exhibit A attached hereto, except as the site plan is required by the terms hereof to be revised, amended, corrected or supplemented, and as to those matters, this resolution shall control. The Applicant shall submit a revised and updated site plan, consistent with this resolution, the plan shall be subject to the approval of the Zoning Administrator and the Planning Commission.

(b) In all matters with respect to the special land use, the Applicant shall comply with applicable provisions of the County Zoning Ordinance and other applicable County ordinances.

(c) The Applicant shall obtain and submit to the County the final approval of the wind energy system by the Michigan Public Service Commission, and the Applicant shall comply with all of the terms thereof.

(d) The Applicant shall obtain and submit all required permits and approvals with respect to the special land use, or particular aspects thereof, from other County and state agencies having jurisdiction, including but not limited to the Michigan Department of Transportation, the Mason County Road Commission and the Mason County Drain Commissioner.

(e) The special land use is subject to the issuance of a zoning permit by the Mason County Zoning Administrator and other required permits under the terms of the state construction codes, as applicable in Mason County.

(f) The Applicant shall prepare, sign and record with the County Register of Deeds a declaration of pooling whereby all of the lands described in Exhibit B of this resolution are pooled into a single pooled unit for the purpose of establishing and operating the special land use under the terms of Section 17.70.19 of the Zoning Ordinance. The declaration of pooling shall be subject to the approval of the County attorney prior to recording, consistent with the terms of this resolution and those of Section 17.70.19. The Applicant shall comply with any changes, additions or deletions required by the attorney as to form or content.

(g) The Applicant shall deposit in advance with the County sufficient funds, as determined by the County, to reimburse the County for the cost of construction reviews, and inspections, certification of proper construction and installation and other inspections and determinations necessary to ensure compliance with the terms and conditions of the special land use, by County personnel and others engaged by the County with respect to the matter, including engineers, attorneys and consultants in specialties relevant to the nature and effects of the special land use.

(h) Prior to the issuance of a County zoning permit pursuant to this resolution, the Applicant shall fully reimburse the County for all of its expenses in the analysis and consideration of the special land use, including but not limited to the fees and expenses of the County's consulting planner, attorney, engineer, specialized consultants and others engaged by the County with respect to the matter, together with the County's other out-of-pocket expenses arising in connection with the application and the special land use.

(i) As requested by the County, the Applicant shall deposit sufficient funds in advance to reimburse the County for its anticipated additional expenses as matters proceed under the special land use with respect to further services or advice rendered by or received from the County's consulting planner, its attorney and other specialized consultants, together with funds necessary to reimburse the County for its other ongoing out-of-pocket expenses which may arise as the Applicant proceeds with the special land use.

2. **Performance Bond or Letter of Credit.** The Applicant shall submit a performance bond, subject to final approval by the County Board of Commissioners, with surety acceptable to the County, or a letter of credit, drawn on a financial institution acceptable to the County, in an amount not less than \$9,200,000, conditioned upon the timely and faithful

compliance by the Applicant with all of the terms of this resolution including but not limited to compliance with all applicable requirements of the County Zoning Ordinance. The form and content of the performance bond or letter of credit shall be subject to approval by the County Attorney as to compliance with applicable requirements.

(a) A performance bond or letter of credit shall be submitted in final form prior to the issuance of a zoning permit pursuant to this resolution.

(b) The performance bond or letter of credit shall comply with Section 18.09 of the Zoning Ordinance, except that any performance guarantee posted by the Applicant with some other governmental body shall not reduce the required amount of the performance bond or letter of credit; except that the Applicant and the County need not enter into the agreement described in subsection 7, in view of the detailed provisions of this resolution; and except that the rebate provisions of Section 18.09 shall not apply. In the event conflict between the provisions of Section 18.09 and this resolution, the terms of this resolution shall control.

(c) The performance bond or letter of credit shall continue in effect throughout the entire duration of the special land use, including the entire period of abandonment, decommissioning and removal of the WTGs and related facilities and components.

(d) If the performance bond or letter of credit is issued for a specified period of years, such period shall be not less than three years, and prior to the end of each stated period of duration, the Applicant shall renew the bond or letter of credit and submit the executed renewed instrument to the County prior to any such expiration.

(e) The amount of the performance bond or letter of credit shall be adjusted at least every three years to reflect changes in the estimated cost of compliance or, if necessary, the removal of the System.

(f) Among other terms, the performance bond or letter of credit shall require that the surety or issuing financial institution shall notify the Zoning Administrator in writing at least 30 days prior to an expiration date of the bond or letter of credit, or at least 30 days prior to an anticipated date of termination.

3. **Certifications.** The Applicant's registered engineer and the manufacturer of the System shall certify that the actual construction and installation of the System has been accomplished in accordance with all requirements and specifications, including this resolution and the specifications of the applicable International Electrotechnical Commission Standards (IEC 61400-1). Such certifications shall be in writing and submitted to the Zoning Administrator prior to commencement of operations under the special land use.

4. **Maintenance Activities and Reports.**

(a) The Applicant shall provide the Zoning Administrator with a copy of the annual maintenance inspection report of the System, promptly after the year covered by the inspection report, as required under Section 17.70.16.c of the Zoning Ordinance.

(b) If there is a mechanical failure of the System resulting in an abnormal sound emission, release of a pollutant or a public safety hazard, the Applicant shall notify the Zoning Administrator to such effect, not later than the next business day following the incident. Prior to the commencement of operations of the System, the Applicant shall provide the Zoning Administrator with a written operational procedure, proposed mitigation measures and emergency contact information, with respect to abnormal sound emissions, releases of pollutants or public safety hazards resulting from mechanical failure of the System.

(c) Within 10 business days after a mechanical failure of the System resulting in an abnormal sound emission, release of a pollutant or public safety hazard, the Applicant shall provide the Zoning Administrator with a written report describing the incident and the Applicant's response thereto.

5. Minor Siting Adjustments.

(a) The Applicant has indicated that unforeseen conditions may require adjustments in the final locations of wind turbine towers, access roads and perhaps other elements of the use.

(b) If because of significant unforeseen conditions, it should be necessary to change the location of a wind turbine tower, and if the re-location is not more than 250 feet away from the approved location, the Planning Commission will consider such relocation, and it shall be subject to the Commission's approval, at a public meeting, after written notice by mail to the property owners within 300 feet of the parcel affected. The Planning Commission meeting on the matter shall include at least 15 days' written notice by mail a public hearing at which the Applicant and other interested parties will be heard.

(c) If significant unforeseen conditions should require the re-location of the entrance of an access road, such relocation may be approved by the Planning and Zoning Director if the access road entrance is to be re-located by not more than 100 feet. In the discretion of the Planning and Zoning Director, any such minor adjustment may be referred for decision to the Planning Commission, but a public hearing shall not be required.

(d) If significant unforeseen conditions should require the re-location of the entrance of an access road by a distance of greater than 100 feet, such proposed re-location shall be subject to the approval of the Planning Commission at a public meeting, though a public hearing shall not be required. In the discretion of the Planning Commission, the proposed re-location may be approved as a minor amendment in the site plan of the special land use.

(e) Any such relocations of facilities or access roads shall be subject to the approval of other agencies having jurisdiction, including among others the Mason County Road Commission with respect to access roads.

6. Approvals of Other Agencies.

(a) The Applicant shall obtain and submit copies of all necessary access road permits from the Mason County Road Commission.

(b) The Applicant shall obtain and submit copies of permits issued by the Michigan Department of Transportation and/or the County Road Commission for the travel of heavy or oversized vehicle loads on any of the streets utilized in the construction and installation of the System. The Applicant shall comply with County road prohibitions on the use of specified County roads during periods of spring thaw annually.

(c) The Applicant shall obtain and submit copies of permits or other approvals issued by the Mason County Drain Commissioner, including soil erosion and sedimentation control permits.

(d) The Applicant shall obtain and submit copies of permits or other approvals by the Federal Aviation Administration with respect to required lighting at the tops of certain of the towers included in the System.

(e) The Applicant shall obtain and submit copies of required Michigan Public Service Commission permits and other required permits and approvals not noted above, prior to issuance of a zoning permit for the special land use.

7. Notification of Local Residents.

(a) The Applicant shall notify local residents in writing as to the location of specified hauling routes, temporary road disruptions and other road-related situations or events arising out of the construction and installation of the System, so as to help assure the safety and convenience of the public.

(b) Such notification shall be given by either first-class U.S. Mail or by personal delivery, at least one week in advance of the use of the specified hauling routes, road disruptions and other road-related situations or events.

(c) At least two weeks prior to the commencement of construction traffic, the Applicant shall furnish to the Planning and Zoning Department a map showing the anticipated hauling routes for the entire construction of the System. The Planning and Zoning Department will post the haul route map on the County website, for convenient reference by the public.

8. Agreement with County Road Commission. The Applicant shall enter into an agreement with the Mason County Road Commission, covering the use of County roads, the location of internal access roads, tree removal within road rights-of-way, enlargement of road turn-radii to accommodate the turning movements of trucks carrying System components to construction sites and other matters. A copy of the completed agreement shall be furnished promptly to the County.

9. Shadow Flicker.

(a) The Applicant shall provide the County with written detailed information on the equipment and methodology to be used to monitor the duration of shadow flicker on all affected properties in any calendar year. Such information shall be submitted at least eight weeks prior to the commencement of operations of the System.

(b) Such shadow flicker information shall include a description of mitigation measures for each receptor site include but not limited to siting changes, operational changes, grading or other means of mitigation.

(c) The Applicant shall not require any property owner to participate or otherwise be involved in the Applicant's determination of the duration of shadow flicker on or as to any affected property.

10. **Signal Interference.** If the operations of the WTGs result in electromagnetic interference with signal transmission or reception as to fixed broadcast transmission, reception antennas for AM or FM radio, 911 emergency systems, Internet broadband, satellite reception, off-air television or wireless telephone or other personal communication systems, the Applicant shall adopt and implement measures to satisfactorily mitigate such interferences. In such event, the Applicant shall promptly submit to the Planning and Zoning Department in writing the measures to be taken to mitigate or cease any such signal interference.

11. **Fire Suppression.**

(a) The nacelles of each WTG shall be equipped with automatic heat and smoke detection and alarm systems and with automatic fire suppression systems. Fire extinguishers shall also be provided in each tower.

(b) The alarm systems shall be connected to each turbine control system and shall be so calibrated that the turbine shall be stopped automatically in the event of a fire, heat or smoke emergency.

12. **Contaminants in or from the WTGs.**

(a) The Applicant shall develop, and furnish to the County, a certified Spill Prevention Control and Counter Measures Plan (SPCC), at least 30 days prior to the delivery of oils, lubricants and/or other fluids to be used in any of the WTGs, the substation transformer or otherwise. The SPCC shall be certified by a professional engineer.

(b) The SPCC shall include measures to prevent release of contaminants into soils or ground water. Consumers shall promptly take all actions necessary to prevent any such releases.

13. **Icing of Turbine Blades.**

(a) At least six weeks prior to the commencement of operations of the System, the Applicant shall submit to the County a written plan for detecting the accumulation of ice on turbine blades, and the measures to be taken to avoid the shedding or throwing of ice from the blades in operation.

(b) The plan shall include the installation and operation of an automatic sensing device or system, for the detection of the accumulation of ice on blades and other equipment and determining the thickness thereof. The plan shall include a detailed description of such devices or equipment.

(c) If ice has accumulated on turbine blades in such thickness or under such weather conditions that may cause it to fall from the blades, the Applicant shall cease operation of the turbine involved until the ice has melted or is otherwise removed, in accordance with the plan.

(d) During weather conditions in which ice may accumulate on turbine blades, the Applicant shall utilize the above-stated ice-sensing system or devices, and promptly undertake measures to cause any accumulated ice to fall safely from the blades or otherwise cease turbine operations until ice is no longer present. If the Applicant proposes to determine ice conditions by means of visual inspection, in addition to the above-stated automatic sensing devices, the plan shall include the methods and procedures whereby sufficient lighting will be used to illuminate the blades for visual inspection during nighttime conditions.

14. Local Emergency Responders.

(a) At least six weeks prior to the commencement of operations of the System, the Applicant shall provide sufficient training, and shall also provide at its own expense any necessary specialized equipment, for local emergency responders, including local fire department personnel, so as to instruct such responders and to provide them with necessary information on the handling of potential emergency incidents at the site of any of the towers or otherwise within the area comprising the special land use.

(b) Prior to the commencement of such training, the Applicant shall notify the Planning and Zoning Department by letter as to the location or locations of such training, and the general details thereof.

(c) If requested by the County or by any local fire department or other official emergency service having jurisdiction as to any part of the special land use, the Applicant shall provide updated or refresher training at least annually.

15. Security. The Applicant shall provide sufficient security for the System, including the locking of all entrances into the towers when personnel of the Applicant are not on site, and sufficient security for construction equipment and other aspects of the System subject to subsequent approval, including an operations and maintenance building, if any, electrical substation and the like.

16. Outdoor Lighting. Ground-level lighting associated with operations of the System, including lighting over tower entry doors and the like shall be shielded so as to prevent the spillage of light beyond the immediate area of the tower or other installation, and so that the light source does not adversely affect vehicle drivers on nearby streets.

17. Dust and Dirt Abatement.

(a) It is anticipated that construction activity for the System will generate dust and dirt which may have adverse effects on other lands. Prior to the commencement of construction, the Applicant shall prepare and submit to the Planning and Zoning Department a detailed plan as to the dust and dirt abatement measures which are to be taken.

(b) All access roads and construction sites shall be treated by the Applicant or its contractors with water, brine or other treatment sufficient to avoid adverse effects on other lands and properties by reason of dust and dirt resulting from construction activity, including the movement of construction and delivery vehicles.

(c) If permitted by the County Road Commission, the Applicant or its contractors shall likewise treat affected public roads with water, brine or other acceptable treatment to avoid adverse effects from dust and dirt arising from construction activity.

18. Sound Levels; Low Frequency Sound and Vibrations.

(a) Within one year after the commencement of operations of the System, the Applicant shall arrange, at the Applicant's expense, for a person with expertise in sound pressure levels selected by the Planning Commission, to prepare and submit written documentation of sound pressure levels at each WTG site, accurately showing compliance with the noise level limitations stated in this resolution. Any WTG which fails to comply with required noise level limitations shall be removed from service or otherwise modified so as to achieve compliance.

(b) In accordance with Section 17.70.17.d of the Zoning Ordinance, the Applicant shall conduct, within one year after the commencement of operations of the System, low frequency sound level measurements to determine whether low frequency sound from operating wind turbines at the exterior of an unpooled, occupied or non-occupied building may create a vibration or low frequency noise problem. In the case of such latter event, further studies shall be conducted using the sound level standards stated in the ordinance. If such further study indicates that low frequency sound or vibration exceeds acceptable levels, the Applicant shall accomplish such mitigation measures as are required by the Planning Commission. Mitigation may include operational changes to a turbine or other measures determined by the Planning Commission.

19. Signage.

(a) A "high voltage" warning sign shall be placed of each WTG tower. The sign shall have letters at least six inches high and shall include a 24-hour emergency telephone number. Such sign shall not exceed six square feet in area.

(b) At the end of each access road, at its intersection with the public street, a similar emergency informational sign shall be installed and maintained, so as to give notice of the presence of the WTGs at or by the access road.

20. Nearby Underground Pipelines.

(a) There are natural gas pipelines and other underground pipelines located within the special land use area. The Applicant's representatives have met with representatives of DTE, MichCon and Omimex, who are the owners or operators of the pipelines.

(b) The Applicant shall implement its agreement to remove WTG No. 7 and replace it by activating WTG No. 57A, and to re-locating WTG Nos. 10 and 23, so as to provide greater isolation between these wind towers and the pipelines owned and/or operated by DTE, MichCon and Omimex, such re-location to be as more fully stated above in this resolution.

(c) The Applicant shall also implement its agreement to re-locate WTG No. 41 approximately 80 feet to the west, so as to be further away from a pipeline easement of Occidental Chemical Corporation.

21. Post-Construction Monitoring.

(a) The Applicant shall conduct a post-construction monitoring study to determine and analyze bird and bat fatalities resulting from the operation of the WTGs. This shall include two years of post-construction monitoring followed by consultation with experts in the field acceptable to the County. As a result, and if required by the County, the Applicant shall undertake effective mitigation measures to reduce bird and bat mortality as a result of system operations.

(b) The Planning Commission may require a post-construction bird and bat mortality study completed by a third-party professional selected by the Planning Commission. If the Commission determines to require such study, it shall be undertaken not later than two years after commencement of operations of the System.

(c) The Applicant shall conduct a post-construction sound survey in compliance with Section 17.70.b(3) of the Zoning Ordinance.

(d) The Applicant shall conduct a post-construction survey and other subsequent undertakings with respect to low frequency sound levels and vibration in accordance with Section 17.70.17.d, and as stated above in this resolution.

(e) The Applicant shall conduct such other post-construction monitoring, and report on the same to the Planning and Zoning Department, as required by the Zoning Ordinance or otherwise by the terms of this resolution.

22. Periodic Performance Review. The Applicant shall fully and timely cooperate with the County in the conducting of any periodic performance review during the operation of the special land use. Should conditions or circumstances arise which may indicate the need for other or more specific performance reviews, the Applicant shall promptly advise the County accordingly. Cooperation by the Applicant as to periodic performance reviews may include, if required by the County, the funding by the Applicant of the reasonable expenses of any necessary third-party review.

23. Abandonment and Decommissioning of the System.

(a) The Applicant shall remove the System, including WTGs and towers after the System has been abandoned, taken out of service or otherwise ceased operations or is otherwise deemed abandoned under Section 17.70.16.

(b) In such circumstances, the Applicant shall bear the entire cost of removal of the System, but in the absence thereof, the County may gain and expend the funds guaranteed under the required performance bond or letter of credit, for such purpose.

(c) In connection with the required removal of the System, the Applicant shall provide the County with satisfactory written certification, by engineers or other professionals, as

to the relative safety of the non-removal of underground electrical wiring or cables, if the Applicant proposes not to remove the same.

24. **Required Removal of Existing Building.** The Applicant shall remove the so-called maple sugar shack on Parcel No. 011-003-019-00, prior to the installation of WTG No. 9.

25. **Other Facilities.** This resolution does not approve the Applicant's proposed operations and maintenance building, electrical substation or other such facilities not included in the terms of this resolution, even if shown on the current site plan. Any such unapproved facilities shall be deleted from the site plan.

(a) The Applicant proposes to establish, equip and operate an electrical substation at a location within the lands comprising the special land use, and shown on the site plan. However, the nature and scope of the substation and other details thereof have not yet been determined by the Applicant. Accordingly, the Planning Commission determines to delete the land parcel shown for the substation from the site plan, and the Applicant shall revise the site plan so as to delete the substation parcel (except that part thereof designated on the site plan for use as a laydown area).

At a future time, the Applicant may apply for a utility grid wind energy system special land use for the substation, on the parcel deleted hereunder, and the Planning Commission will consider the Application after the required public hearing, following publication of notice and the mailing of notice to the owners of all lands within 300 feet of the substation parcel.

(b) It is understood that the Applicant may wish to apply at a future time for approval of a proposed operations and maintenance building to be located within the lands comprising the special land use. The Applicant indicates that the location of the proposed building is unknown at the present time. If the Applicant desires at a later time, it may request that the Planning Commission amend the site plan so as to delete the proposed parcel for the operation and maintenance building from the site plan. If the parcel is so deleted, the Applicant may apply for a utility grid wind energy system special land use as to the parcel, for the operations and maintenance building, and the Planning Commission will consider the application after the required public hearing and the publication of notice and the mailing of notice to the owners of all lands within 300 feet of the parcel to be occupied by the proposed building.

(c) The site plan includes so-called laydown areas within the lands comprising the special land use, for the accumulation of construction material, supplies and the like, and otherwise in connection with construction of the System. Such laydown areas shall be utilized only for construction purposes, shall be temporary only and shall no longer be used after construction is completed. Upon the removal of construction equipment and the like from the laydown areas, they shall be restored to generally their previous condition.

Part H – Other Matters

1. **Zoning Permit.** The special land use is subject to the issuance of a zoning permit by the Zoning Administrator, prior to the commencement of any activities under the special land use, as required under Section 16.06.

2. **Minor Changes.** Minor non-substantive changes in the site plan may be approved by the Zoning Administrator to the extent permitted under the terms of Sections 16.10 and 18.06.

3. **Annual Review.** In addition to the performance review provided for in Section 17.70.23 of the Zoning Ordinance, the Planning Commission reserves the right to review with the Applicant and the Zoning Administrator, the status of the special land use on an annual basis, as provided for by Section 16.09.

4. **Stop Work Order; Suspend Operations Order.**

(a) If the Zoning Administrator determines a violation in the special land use, the Administrator may issue and post a stop work order and a notice to appear for a hearing before the Planning Commission. Upon issuance of the stop work order, the Applicant shall cease all work covered by the order. Such order may include an order for the suspension of operations under the special land use, in whole or in part.

(b) In such event, at least 10 days prior notice of the hearing date shall be provided to the Applicant, under the terms of Section 16.09.2.

5. **Revocation of Special Land Use.**

(a) The Planning Commission may revoke the special land use, in whole or in part, if there is a violation or violations in the establishing of or operations under the special land use or with respect to the approved site plan.

(b) Notice of such revocation, and the extent thereof, shall be provided in writing to the Applicant, together with notice of a hearing on the matter.

(c) Following any such hearing, the Planning Commission may revoke the special land use, in whole or in part. Thereafter, the Applicant shall not proceed further under the special land use or those aspects thereof as to which approval may be revoked, except to correct violations if authorized by the Planning Commission in its decision of revocation.

6. **Other Remedies.** In addition to revocation of the special land use, in whole or in part, the County shall have all other remedies available to it by law, in the event of noncompliance with any of the terms, conditions and requirements of the special land use.

AYES: Chambers, Robidoux, Patterson, Barnett, Fox and Schneider.

NAYS: None.

ABSENT: One.

RESOLUTION DECLARED ADOPTED.

Secretary

