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October 27, 2009

**DTE Energy**

Lake Township Planning Commission
P.O. Box 429
Caseville, Michigan 48725-0429

Dear Lake Township Planning Commission,

The purpose of this letter is to respond to the questions included in your letter dated September 8, 2009, received by Detroit Edison September 14, 2009. We hope you find these responses helpful as you continue to consider a wind turbine siting ordinance for Lake Township. We appreciate this opportunity to provide this information.

1. What is a reasonable setback for a wind turbine from:
    a. The shoreline;

We assume the question related to setbacks from the shoreline is based on concerns for wildlife. Since 2007 DTE has been conducting wildlife studies to determine setbacks from the shoreline that are reasonably protective of wildlife. Although no specific wind farm has yet been proposed, DTE is studying Huron County in particular to help inform the planning process – including siting of turbines in a manner that is reasonably protective of wildlife. Because shoreline conditions and uses by wildlife vary along Saginaw Bay and Lake Huron, DTE intends to base its shoreline setbacks on these studies. Reasonable setback distances will vary as shoreline and associated wildlife conditions vary, and Lake Township's ordinance should accommodate this variability. DTE recommends that any setback criteria based on a concern for wildlife include flexibility that reflects the various land zoning and the differences in use of these land zones by wildlife. This approach would allow wind turbine siting if wildlife studies indicate that siting can be done that is reasonably protective of wildlife. Regardless, DTE does not expect to site turbines close to such shorelines, unless extenuating circumstances warrant such a situation, and the circumstance involves the concurrence of wildlife professionals including the United States Fish and Wildlife Service (FWS), based on available data.

    b. An occupied dwelling;

We assume the question related to setbacks from an occupied dwelling is based upon concerns about acoustics. While there are other aspects to siting wind turbines, acoustics tend to be the determining factor for setbacks from occupied dwellings. There is no one distance-based setback that is appropriate in all situations given the variables that typically apply. Consequently, setbacks based on acoustic concerns should be based on sound propagation modeling, the results of which are dependent on:

- The number of wind turbines
- The sound power of the wind turbine

- The proximity of turbines to the home,
- The meteorological conditions in the area, and
- Terrain

c. Rush Lake;

As stated previously, any setback criteria based on a concern for wildlife should provide flexibility if appropriate data indicates that siting can be done that is reasonably protective of wildlife. As stated previously, DTE is studying various aspects of wildlife in Huron County, including that of Rush Lake Game Area. DTE's future proposed project siting will be based on that study, and will involve consultation with groups including state and federal agencies, such as the MDNR and FWS respectively.

d. A road;

DTE believes a setback from roads equal to 1.1 times the wind turbine's maximum tip height is reasonable.

e. A river?

As stated previously, any setback criteria based on a concern for wildlife should provide flexibility if appropriate data indicates that siting can be done that is reasonably protective of wildlife. As stated previously, DTE is studying various aspects of wildlife in Huron County, including that of riparian areas. Setbacks determined to be reasonable will be based on that study, and will also involve consultation with groups including state and federal agencies, such as the MDNR and FWS respectively.

2. What noise guidelines do you recommend? Please provide criteria that DTE would recommend for inclusion in an ordinance?

DTE recommends the township adopt a standard for wind turbine noise that recognizes the potential for impacts on the community and minimizes these by placing reasonably protective limits. We recommend a standard that limits the overall turbine sound level at the home to be no greater than 45 dBA averaged over the night, unless waived by a participating land owner. This value is based on a study (WINDFARMperception - attached) conducted in 2008 and financed by the European Union, that found that non-participating residences had a statistically significant rate of sleep disturbance only at levels above 45 dBA. While the survey investigated other health impacts, including those related to headaches, fatigue, pain, irritability, concentration, nausea, etc., there were no statistically significant relationships found between wind turbine noise and any of these other health impacts. This study's finding is reinforced by both World Health Organization (WHO) and United States Environmental Protection Agency (EPA) night-time guidelines established to protect against sleep disturbance (and measured at the bedroom window).

3. Please provide documentation relative to impacts of wind turbines on human health.

   Our acoustics consultant, RSG, Inc., has recommended documents they believe provide an objective and credible perspective on wind turbines and human health. DTE has attached these documents for your review, and a brief summary of each follows:

   - **WHO Guidelines for Community Noise** – Included table shows recommended community noise criteria, with sound pressure values averaged over the night, as measured outside the bedroom window, as protective against sleep disturbance, as well as other averaged sound pressure values considered protective at other times of day.
   - **WINDFARMperception** – This EU financed study of over 700 homes in the Netherlands found no health effects related to wind turbine noise, other than sleep disturbance above a statistically significant decibal value.
   - **Pederson 2009** – The conference paper by Eja Pederson reviews three studies on large populations around wind turbines.
   - **Maine Center for Disease Control and Prevention** – Reviews noise from wind farms and concludes that the Maine standards at night are protective of human health. A quote from the article – "In my review, I found no evidence in peer-reviewed medical and public health literature of adverse health effects from the kinds of noise and vibrations heard by wind turbines other than occasional reports of annoyances, and these are mitigated or disappear with proper placement of the turbines from nearby residences." And "Reviews found in peer reviewed journals of the possible health effects of low frequency noise have not found significant health effects."
   - **Geoff Leventhall – Infrasound from Wind Turbines – Fact, Fiction, or Deception** – This article discusses common misunderstandings about low frequency noise and infrasound, and demonstrates that infrasound from wind turbines is "of no consequence".
   - **Wind Turbine Acoustic Noise** – Renewable Energy Research Laboratory University of Massachusetts. Provides good background material on wind turbine noise.

4. What complaint provisions would DTE recommend for inclusion in an ordinance? Please provide.

   Following is a possible complaint resolution protocol:

   a) Owner/operator sets up a complaint hotline. The toll-free number is sent to adjacent property owners and is posted in township office.
   b) If a call is made to the hotline, a series of questions is asked to characterize the problem. In addition, owner/operator logs the turbine operating parameters at the time of the complaint. The caller may be asked to continue to log noise or other events pertaining to the event so that owner/operator can further diagnose the problem.
   c) If a site visit is required, owner/operator makes a reasonable effort to notify an appropriate township administrator, and gives them the option of joining

the site visit. In some cases, such as calls at night, immediate notification may not be possible. Owner/operator may make noise or other measurements during the site visit.

d) Within 30 days of the call, owner/operator either resolves the complaint or creates an action plan for further investigation and resolution. This may include further logging of events and/or detailed sound or other monitoring.
e) If sound or other monitoring is required, the township is notified and given the option to observe measurements. For complaints related to acoustics, at a minimum, A-weighted sound levels are logged. Other monitoring is conducted as required if the complaint is related to low frequency, tonal noise, or amplitude modulation.
f) Owner/operator maintains the hotline call and resolution logs and makes available to the township upon their request.
g) Prior to opening the wind farm, owner/operator makes the process available for public review.

5. Please provide DTE's recommended criteria for a property protection plan to be included in an ordinance.

   DTE does not recommend property protection criteria specific to wind development. This recommendation is based on information showing that changes in property values are not significant before and after wind turbines are installed (see attached 10/09 Hoen Study presentation). Regardless, if Lake Township determines the need for this provision, such a provision should not focus solely on wind turbines, but address <u>any</u> condition, development or operation that might cause property values to change.

6. Please provide the estimated costs for complete removal (i.e. to include removal of footings) per wind turbine.

   While DTE has estimated costs on a preliminary basis for wind turbine removals, it is important to note that these costs may vary based on wind turbine design. Consequently, we recommend the wind ordinance require such costs be included as part of the wind turbine project application submitted to the township. In this way, estimated costs will reflect the project actually submitted.

7. What does DTE consider an appropriate amount of insurance per wind turbine?

   For strong balance sheet companies, self insurance is typical. For utility sized turbines, it seems reasonable to require a developer to demonstrate insurance or liquidity capable of paying off liabilities equal to several million dollars depending on the size of the wind farm.

8. Who is responsible for liability from injury related to a wind turbine? For example, (1) from shedding ice; (2) health problems suffered by adjacent property owners.

"Liability" and "injuries" take many forms under the law. In general, liability depends on the facts and circumstances, who is determined by a judge or jury to be responsible for a particular situation and the extent and cost of the related damage.

9. Please provide documentation on FAA required lighting regulations.

   Please refer to FAA Advisory Circular No. 70/7460-1K, February 2007, found at www.faa.gov. We are aware studies related to lighting and wildlife will cause a revision to this advisory circular, likely later in 2009.

10. Please provide revised estimate of projected revenues to Lake Township based upon anticipated number of wind turbines realistically projected to be installed in Lake Township.

    Attached is a spreadsheet reflecting available revenue projections.

11. Please provide comments to the CRS Report to Congress of June 20, 2008 and specifically DTE's comment to the 0.6 kilometer recommended setback from an occupied dwelling to a wind turbine.

    The CRS report does not recommend a 0.6 km setback from an occupied dwelling. The CRS report of June 20, 2008 is quoted directly as follows:

    > "In addition to the visual impacts, there are other objections. All wind turbines produce mechanical and aerodynamic noise. Noise is thus a siting criterion for regulatory purposes. Early wind turbine models were often loud, especially downwind versions (blades behind the generator). Newer models are designed to minimize noise. Like visual aesthetics, wind turbine noise is often a matter of individual preferences and tolerances. For residences over 1 kilometer (0.6 miles) from a wind turbine, noise is generally not an issue."

    While there is no reference cited, this excerpt is likely adapted from the 2007 National Research Council Report, "Environmental Impacts of Wind-Energy Projects, which is quoted as follows:

    > "Turbine noise usually is most critical within a half-mile of a project. Efforts to reduce potential noise impacts on nearby residents therefore may be most important within that distance."
    >
    > and
    >
    > "Noise produced by wind turbines generally is not a major concern for humans beyond a half mile or so because various measures to reduce noise have been implemented in the design of modern turbines."

    It is important to note that neither the CRS or National Academies report recommends a setback of 0.5 or 0.6 miles, they are only pointing out that wind turbine noise is not an issue beyond this point. In addition, it highlights the

importance of focusing analysis and mitigation on residences within that distance. As mentioned in the answer to question # 1.b., noise setbacks should be based on sound levels.

12. The Region 3 Office, Great Lakes Region, of the USFWS has provided recommendations to the Lake Township Planning Commission. Is it DTE's position that those recommendations should not be followed?

Our specific recommendation for a wind ordinance is that the wind developer consult with the FWS and present to the township confirmation from the FWS the proposed development is in compliance with FWS recommendations.

DTE has established a cooperative relationship with the FWS over many years. We have been in regular contact with their East Lansing office, have conferred with their wind and hydro coordinator out of their Region 3 Headquarters in Minnesota, and have monitored closely progress at the federal level related to efforts to update the 2003 siting guidelines. Often, various offices of government have viewpoints that differ based on the level of information available at the time advice is requested. We are aware that the FWS East Lansing office has recommended no wind development within 3 miles of shoreline, unless it can be shown with data that development closer to the shoreline would be more protective of wildlife than development farther away. At the regional level, we have been advised that, while the 3 mile setback is a starting point, the region is willing to discuss wind developments closer to the shoreline provided a sound data set provides the basis for this plan. The Department of Interior's Federal Advisory Committee has worked diligently for nearly two years to develop a revised set of wind turbine siting guidelines. These guidelines focus on completing appropriate studies designed to understand and avoid, minimize, or mitigate impacts to wildlife. These guidelines focus on studies, and not prescriptive setbacks, because the cross-functional team of state and federal regulators, non-governmental entities, and industry, recognize the diversity of conditions and habitats that might be encountered when contemplating wind development. Thus, their process features a tiered approach by which wind development planning scrutinizes an area of interest at increasing levels of detail depending on what each previous level of evaluation indicates requires further study.

The fact that these three levels of the same government organization differ somewhat indicates that without site-specific data uncertainty remains as to what siting can be done that is reasonably protective of wildlife. However, a common element about the guidance at all three levels is that for most projects site-specific data must be considered at some point in the process. In light of this, DTE will continue to confer with the FWS at multiple levels, using data as the basis for our plans.

While it is important to note that the FWS functions primarily in an advisory role, DTE, as a company with a strong heritage of environmental stewardship, desires to work with the FWS to protect wildlife. Further, we recognize that data gaps remain in the process of wind turbine siting relative to wildlife, and this is largely

due to the process being very site-specific. Consequently, our focus has been, and will continue to be, to work with the FWS in filling information gaps using collected data to the extent possible. In all this, our goals remain to ensure an approach 1) that honors FWS concerns, 2) is consistent with our environmental stewardship heritage, and 3) that achieves our renewable energy goals.

As you can see based on the above responses, there is information that is dependent on site and project-specific conditions. Further, these responses reflect what we believe is an appropriate course of action based on current knowledge. As the industry progresses, we expect improvements or other changes might impact these responses. We would be happy to discuss these issues further to the extent the planning commission requires assistance. However, we must respectfully request that further correspondence or discussions take place in a ***small*** work group setting rather than in town hall-type settings such as open planning commission or township board meetings. We see this work group setting, where DTE is willing to serve in an advisory role if the commission desires, as the only way to productively proceed with developing a practical wind ordinance. We'd be happy to discuss this at a later time with a representative of the planning commission. Please contact Matt Wagner or me at your convenience if there is interest.

Sincerely,

Grady Nance

Grady Nance
Manager, Renewable Energy Development and Technology
Detroit Edison

Attachments