

STATE OF MINNESOTA  
OFFICE OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of the Application of AWA  
Goodhue Wind, LLC, for a Large Wind  
Energy Conversion System Site Permit  
for the 78 MW Goodhue Wind Project in  
Goodhue County

**FINDINGS OF FACT, CONCLUSIONS,  
AND RECOMMENDATIONS**

This matter came on for hearing before Administrative Law Judge Kathleen D. Sheehy on March 15-17, 2011, at the Offices of the Minnesota Public Utilities Commission, 350 Metro Square Building, 121 Seventh Place East, St. Paul, Minnesota. The OAH record closed on April 8, 2011.

Todd J. Guerrero and Christina Brusven, Fredrickson & Byron, PA, 200 South Sixth Street, Suite 4000, Minneapolis, MN 55402-1425, appeared for AWA Goodhue Wind, LLC (Applicant).

Karen Finstad Hammel, Assistant Attorney General, 445 Minnesota Street, Suite 1400, St. Paul, MN 55101, appeared for the Department of Commerce, Office of Energy Security, Energy Facility Permitting Staff (Department or OES/EFP). OES/EFP did not appear as a party in this case; its participation was limited to the filing of comments and questioning of witnesses.<sup>1</sup>

Stephen Betcher, County Attorney, and Carol Lee, Assistant County Attorney, 454 West Sixth Street, Red Wing, MN 55066, appeared for Goodhue County.

Patrick J. Hynes, Strobel & Hanson, PA, 406 West Third Street, Suite 200, Red Wing, MN 55066, appeared for Belle Creek Township.

Carol Overland, Attorney at Law, P.O. Box 176, Red Wing, MN 55066, appeared for Goodhue Wind Truth.

Daniel S. Schleck, Mansfield Tanick & Cohen, PA, 1700 US Bank Plaza South, 220 South Sixth Street, Minneapolis, MN 55402-4511, appeared for the Coalition for Sensible Siting.<sup>2</sup>

---

<sup>1</sup> See Comments filed December 21, 2010.

<sup>2</sup> Mr. Schleck filed a Notice of Appearance indicating that he represented the City of Zumbrota, the City of Goodhue, and the Coalition for Sensible Siting. At the hearing Mr. Schleck clarified that he was appearing only on behalf of the Coalition for Sensible Siting. See Tr. 1:12.

Commission staff members Tricia DeBleeckere, Bob Cupit, and Bret Eknes attended the hearing.

Based on all the files, records, and proceedings herein, the Administrative Law Judge makes the following:

## **FINDINGS OF FACT**

### **I. Statutory Background.**

1. Wind energy developments are governed by the Minnesota Wind Siting Act, Minnesota Statutes Chapter 216F. The chapter defines a large wind energy conversion system (LWECS) as any combination of wind energy conversion systems with a combined nameplate capacity of 5 megawatts (5,000 kilowatts) or more. A small wind energy conversion system (SWECS) means any combination with combined nameplate capacity of less than 5 megawatts.<sup>3</sup> It is the policy of the state to site LWECS in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources.<sup>4</sup>

2. No person may construct a LWECS without a site permit from the Public Utilities Commission.<sup>5</sup> A permit under Chapter 216F is the only site approval required for the location of an LWECS. The site permit supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances adopted by regional, county, local, and special purpose governments.<sup>6</sup> Local governments may establish requirements for the siting and construction of SWECS.<sup>7</sup>

3. In 2007, chapter 216F was amended by the Next Generation Energy Act of 2007. The amendments provided in relevant part that a county board may assume responsibility for processing applications for permits for LWECS with a combined nameplate capacity of less than 25 megawatts, if the board takes such action by resolution and provides written notice to the Public Utilities Commission.<sup>8</sup> The legislature required the Commission to establish, by order, general permit standards (including property line setbacks) for LWECS under this section. The statute further provides that the order must consider existing and historic commission standards for wind permits issued by the commission. These general permit standards “shall apply to permits issued by counties and to permits issued by the commission for LWECS with a combined nameplate capacity of less than 25,000 kilowatts.” The commission or a county

---

<sup>3</sup> Minn. Stat. § 216F.01, subds. 2 & 3.

<sup>4</sup> Minn. Stat. § 216F.03.

<sup>5</sup> Minn. Stat. § 216F.04.

<sup>6</sup> Minn. Stat. § 216F.07.

<sup>7</sup> Minn. Stat. § 216F.02(c).

<sup>8</sup> Minn. Stat. § 216F.08(a).

may grant a variance from a general permit standard if the variance is found to be in the public interest.<sup>9</sup>

4. Included in the 2007 amendments was the following provision:

A county may adopt by ordinance standards for LWECS that are more stringent than standards in commission rules or in the commission's permit standards. The commission, in considering a permit application for LWECS in a county that has adopted more stringent standards, shall consider and apply those more stringent standards, unless the commission finds good cause not to apply the standards.<sup>10</sup>

5. In response to these amendments, the Commission opened a docket to establish general wind permit standards that would be applicable to permits issued by counties and to permits issued by the commission for LWECS with a combined nameplate capacity of less than 25 megawatts. After notice and a comment period, the Commission issued an order establishing general wind turbine permit setbacks and standards for LWECS facilities permitted by counties pursuant to Minn. Stat. § 216F.08. As stated in the Order, these standards and setbacks maintain most of the Commission's established LWECS permit standards and setbacks that had been in effect for the previous 12 years, with some minor changes.<sup>11</sup>

6. The Commission's *General Wind Permit Standards Order* contains setbacks and standards for LWECS that are permitted by counties under Minn. Stat. § 216F.08. Those standards are essentially the same as the permit standards the Commission had developed in other dockets and had previously applied to all LWECS, prior to the 2007 amendments.<sup>12</sup>

7. As of January 2010, six counties had assumed responsibility to permit wind projects: Lyon, Murray, Freeborn, Lincoln, Stearns, and Meeker counties.<sup>13</sup>

8. As of January 2010, there were more than 1,400 wind turbines in Minnesota with a nameplate capacity of more than 1,800 megawatts. Of those

---

<sup>9</sup> Minn. Stat. § 216F.08(c).

<sup>10</sup> Minn. Stat. s 216F.081

<sup>11</sup> *In the Matter of Establishment of General Permit Standards for the Siting of Wind Generation Projects Less than 25 Megawatts*, Docket No. E,G-999/M-07-1102, Order Establishing General Wind Permit Standards (Jan. 11, 2008) (*General Wind Permit Standards Order*). For ease of reference, a copy of this Order and its attached Ex. A was received in evidence as Ex. 21.

<sup>12</sup> Ex. 21 at 3 and Attachment A. See also Ex. 24A at 514 (commission permit standards developed in generic dockets and individual project dockets).

<sup>13</sup> Ex. 24A at 510.

turbines, approximately 1,058 were permitted by the MPUC, and 361 were permitted by local governments.<sup>14</sup>

## II. The Applicant.

9. The Applicant, AWA Goodhue, LLC, is the developer of a proposed 78 MW wind farm in Goodhue County. The project as proposed consists of 50 1.5- or 1.6-MW GE xle wind turbine generators, gravel access roads, an underground electrical collection system, two permanent meteorological towers, an operation and maintenance facility, two project substations, and step-up transformers at the base of each turbine. The expected cost to design and construct the project is \$179 million.<sup>15</sup>

10. The Applicant owns National Wind, LLC, a development company headquartered in Minneapolis.<sup>16</sup> American Wind Alliance, LLC, owns the Applicant; Mesa Power Group owns American Wind Alliance; and Thomas Boone Pickens, Jr., owns Mesa Power Group. Upon commercial operation, the Applicant will be owned jointly by American Wind Alliance (99%) and Ventem Energy, LLC, a group of about 20 Minnesota investors (one percent).<sup>17</sup>

11. The project permit boundary includes 32,684 acres in Belle Creek, Minneola, Goodhue, Vasa, and Zumbrota Townships in Goodhue County.<sup>18</sup>

12. On October 15, 2009, the Applicant filed an application for a certificate of need with the Commission.<sup>19</sup>

13. On October 19, 2009, the Applicant filed an amended application for a site permit with the Commission.<sup>20</sup>

14. In October 2009, the Applicant entered into two Power Purchase Agreements (PPAs) with Xcel Energy representing purchases of the full expected output of the project.<sup>21</sup> On April 28, 2010, the Commission approved Xcel Energy's petitions for approval of these PPAs.<sup>22</sup>

---

<sup>14</sup> Ex. 24A at 503, 505.

<sup>15</sup> Ex. 1, Ward Direct at 3-4; Ex. 2, Robertson Direct at 2.

<sup>16</sup> Ex. 3, Burdick Direct at 1.

<sup>17</sup> Ex. 1, Ward Direct at 4; Tr. 2:68-69 (Ward).

<sup>18</sup> Ex. 3, Burdick Direct at 2-3.

<sup>19</sup> *In the Matter of the Application of AWA Goodhue Wind, LLC, for a Certificate of Need for a 78-Megawatt Wind Project and Associated Facilities in Goodhue County*, Docket No. IP-6701/CN-09-1186 (*Certificate of Need Docket*).

<sup>20</sup> *In the Matter of the Application of AWA Goodhue Wind, LLC, for a Large Wind Energy Conversion System Site Permit for the 78 Megawatt Goodhue Wind Project in Goodhue County*, Docket No. IP-6701/WS-08-1233 (*Site Permit Docket*).

<sup>21</sup> Ex. 1, Ward Direct at 3.

<sup>22</sup> *In the Matter of Northern States Power Company's Request for Approval of Power Purchase Agreements with Goodhue Wind, LLC*, Docket Nos. E-002/M-09-1349, E-002/M-09-1350, Order

15. On May 3, 2010, the Commission issued an order denying Goodhue Wind Truth's request for a contested case hearing in this docket, concluding that there were no material issues of fact that would require a contested case hearing. The Commission expanded the scope of the public hearings in the certificate of need docket, however, to include siting and permitting issues. The Commission also approved for distribution and comment a draft site permit.<sup>23</sup>

16. Public hearings were held on July 21-22, 2010. The hearings were well attended, and a summary of public testimony was provided to the Commission in September 2010.<sup>24</sup>

17. The Applicant has negotiated easements, leases, and participation agreements with approximately 200 persons who own land in the project area. Through these agreements, approximately 12,000 acres of land are available to site wind turbines and provide setbacks of 1,500 feet from non-participating residences and a minimum of 1,000 feet for participants.<sup>25</sup>

18. At present, the Applicant proposes to site all the turbines in Belle Creek and Minneola Townships. These townships are not significantly different, in terms of housing density, than townships that are hosting other wind turbine projects in Dodge and Mower Counties.<sup>26</sup>

19. The Applicant has invested approximately \$7.5 million in acquisition and development costs for the project.<sup>27</sup>

20. The Applicant anticipates that the project will generate \$768,000 per year to participating landowners, or about \$20 million over the life of the Power Purchase Agreements negotiated with Xcel Energy.<sup>28</sup> In addition, the Applicant anticipates that local governments (the County and townships) would receive \$302,000 per year in energy production tax payments, or about \$6 million over the life of the Power Purchase Agreements.<sup>29</sup>

---

Approving Power Purchase Agreements, Approving Contract Amendments, and Requiring Further Filings (Apr. 28, 2010) (copy included in Ex. 24A at 138-47).

<sup>23</sup> *Certificate of Need Docket* and *Site Permit Docket*, Order Approving Distribution of Draft Site Permit and Denying Contested Case (May 3, 2010).

<sup>24</sup> *Certificate of Need Docket* and *Site Permit Docket*, Summary of Public Testimony (Sept. 7, 2010).

<sup>25</sup> Ex. 3, Burdick Direct at 2-3.

<sup>26</sup> Ex. 3, Burdick Direct at 20.

<sup>27</sup> Ex. 2, Robertson Direct at 2.

<sup>28</sup> Ex. 2, Robertson Direct at 9.

<sup>29</sup> Ex. 2, Robertson Direct at 9.

21. On October 20, 2010, OES/EFP recommended approval of the site permit application with conditions. The proposed site permit was attached to its recommendation.<sup>30</sup>

### III. Other Parties.

22. Goodhue County is located approximately one hour southeast of the metropolitan Twin Cities area. It is bordered generally by Dakota County on the north, Dodge and Olmsted Counties on the south, Rice County on the west, and Wabasha County and the Mississippi River on the east. It has approximately 46,000 residents.<sup>31</sup>

23. The land within the project boundary is zoned under a variety of different agricultural zoning classifications.<sup>32</sup>

24. The Goodhue County Comprehensive Plan explicitly supports the development of “innovative industrial agricultural” land uses such as ethanol production and wind generation.<sup>33</sup>

25. The County Board passed a resolution supporting the project as a community-based energy development project.<sup>34</sup>

26. The County negotiated a Development Agreement with the Applicant that addresses the Applicant's obligations to comply with the State Building Code, obtain building permits, repair any damage to roads caused by construction traffic, restore roads to preconstruction surface condition, repair any damage to underground drainage systems, and pay all reasonable costs incurred by the County in connection with the project. The negotiations were completed and the County Board approved it on October 5, 2010, but the Development Agreement has not been executed.<sup>35</sup>

27. On October 5, 2010, Goodhue County adopted amendments to Article 18 of its zoning ordinance for wind projects.<sup>36</sup> The County did not assume responsibility to process applications or permit LWECS. In section 1, the ordinance provides:

This ordinance is established to regulate the installation and operation of Wind Energy Conversion Systems (WECS) within

---

<sup>30</sup> *Site Permit Docket*, Comments and Recommendations of the Minnesota Office of Energy Security Energy Facility Permitting Staff (Oct. 13, 2010); Supplemental Comments and Recommendations (Oct. 20, 2010). These documents were re-filed as Attachments 2 and 3 to OES Comments filed on December 20, 2010.

<sup>31</sup> [http://www.co.goodhue.mn.us/visitors/about\\_ghc.aspx](http://www.co.goodhue.mn.us/visitors/about_ghc.aspx).

<sup>32</sup> Tr. 1:180-81 (Burdick). See also Ex. 3, Burdick Direct at 3 & Attachment 3A.

<sup>33</sup> Ex. 24A at 881. See also Tr. 2:314-15 (Hanni).

<sup>34</sup> Ex. 24A at 143; Tr. 1:54.

<sup>35</sup> Ex. 1, Ward Direct at Attachment B; Ex. 3, Burdick Direct at 23.

<sup>36</sup> Ex. 24B.

Goodhue county that have a total nameplate capacity of 5 Megawatts or less (Small Wind Energy Conversion Systems – SWECS) and are not otherwise subject to siting and oversight by the State of Minnesota pursuant to Minnesota Statutes, Chapter 216F, Wind Energy Conversion Systems, as amended. For LWECS, the county does not assume regulatory responsibility or permit authority under MS 216F.08, but any standards more stringent than those of the MPUC are to be considered and applied to LWECS per MS 216F.081.<sup>37</sup>

28. The ordinance has no standards that specifically regulate LWECS. The setback provisions for commercial WECS, which are defined as “a WECS of 1 megawatt to 5 megawatts in total name plate generating capacity,” include setbacks of 750 feet from participating dwellings and ten rotor-diameters (RD) from non-participating dwellings, unless an owner has agreed to a reduced setback (in no event less than 750 feet).<sup>38</sup> The ordinance also contains provisions requiring the application for a commercial WECS to include offers of two pre-construction stray voltage tests at all registered feedlots within the proposed project boundary and within one mile of the proposed project.<sup>39</sup>

29. The City of Goodhue, which has a population of approximately 925 people, and the City of Zumbrota intervened in this matter but did not participate in the contested case hearing. On August 12, 2009, the Goodhue City Council passed a resolution calling for a two-mile setback from the city of Goodhue “to prevent any Large Wind Energy Conversion System (LWECS) of being constructed.”<sup>40</sup>

30. Belle Creek Township is an agricultural community of fewer than 450 people within Goodhue County.<sup>41</sup> The township board has held about one dozen meetings to discuss the project. Approximately 40-50 people have consistently attended these meetings to oppose the project.<sup>42</sup>

31. Goodhue Wind Truth is an informal association that is not legally organized and has no membership other than Marie and Bruce McNamara, who live in section 11 within the project area. The turbine site proposed to be closest to their address appears to be at least one-half mile away. They use the name Goodhue Wind Truth for purposes of providing information regarding this project and other wind projects generally. They have established a website, bought newspaper advertisements and billboards, printed flyers, and hosted meetings in

---

<sup>37</sup> Ex. 24B, Art. 18, § 1.

<sup>38</sup> Ex. 24B, Art. 18, § 2, subd. 5; § 4, subd. 1.

<sup>39</sup> Ex. 24B, Art. 18, § 3, subd. 2 G; § 6, subds. 1-3.

<sup>40</sup> Ex. 24A at 448. The same document appears at 451, 855, and 1194.

<sup>41</sup> Ex. 31, Ryan Direct at 2.

<sup>42</sup> Ex. 31, Ryan Direct at 4.

the community regarding county and state permitting issues for wind development.<sup>43</sup>

32. The Coalition for Sensible Siting is organized as a non-profit corporation in Minnesota to provide facts and information on wind energy projects to the public. Steve Groth and Ann Buck are members of the Board of Directors. Steve Groth lives in Zumbrota, outside the project area. Ann Buck owns property in section 24 within the project area. The turbine site proposed to be closest to her property appears to be about three-quarters of a mile away. The Coalition for Sensible Siting has no members or shareholders.<sup>44</sup>

33. Goodhue Township and Zumbrota Township passed resolutions on March 9, 2010, providing that LWECS could be sited no closer than one-half mile from non-participating residences.<sup>45</sup> The resolutions were based on the “possible health and safety effects” associated with LWECS. Neither Goodhue Township nor Zumbrota Township petitioned to intervene in this matter, nor did they participate in the hearing.

#### **IV. Issues for Hearing.**

34. On October 21, 2010, approximately two weeks after the County adopted its amended wind ordinance, the Commission met to consider the site permit application. The Commission concluded that it could not satisfactorily resolve, on the basis of the record before it, all questions regarding the applicability of the County’s ordinance, including whether there was good cause for the Commission not to apply any ordinance standards that are more stringent than the standards currently applied to LWECS by the Commission.<sup>46</sup> The matter was referred to the Office of Administrative Hearings for a contested case proceeding to develop the record as follows:

- Development of a record on every standard in Article 18 of the Goodhue County Ordinances on Wind Energy Conversion Systems that is more stringent than what the Commission has heretofore applied to large wind energy conversion systems (LWECS), for the purpose of making recommendations regarding whether the standard should be adopted for LWECS in Goodhue County;
- Development of a record on the question of “good cause” as that term appears in Minn. Stat. § 216F.081, for the purpose of making recommendations on whether there is good cause for the

---

<sup>43</sup> Ex. 32, McNamara Direct at 2; Affidavit of Marie McNamara (Feb. 8, 2011), efiled in connection with Goodhue Wind Truth’s Motion for Reconsideration (Feb. 11, 2011) (contains address); Ex. 3, Burdick Direct at Attachment B (contains turbine locations).

<sup>44</sup> Affidavit of Steve Groth (Feb. 8, 2011), efiled in connection with Goodhue Wind Truth’s Motion for Reconsideration (Feb. 11, 2011) (contains property locations); Ex. 3, Burdick Direct at Attachment B (contains turbine locations).

<sup>45</sup> Ex. 24A at 935 (and 2503 and 5289) (Zumbrota Township); 1094-95 (Goodhue Township).

<sup>46</sup> *Site Permit Docket*, Notice and Order for Hearing at 2 (Nov. 2, 2010).

Commission to not apply the standard to LWECS in Goodhue County; and

- Development of a record to determine whether there is sufficient evidence regarding health and safety to support two specific portions of Article 18: the 10-rotor diameter setback for nonparticipating residents, contained in Section 4, and the stray voltage requirements, contained in Section 6.<sup>47</sup>

35. On November 5, 2010, the Commission deferred consideration of the application for a certificate of need, pending completion of the contested case in this docket.<sup>48</sup>

## V. Good Cause.

36. The County, Goodhue Wind Truth, and the Coalition for Sensible Siting have argued in part that there is no conflict between the County's ordinance requirements and the Commission's general permitting standards because the Commission has *no* permitting standards applicable to LWECS of 25 megawatts or more. They rely on the *General Wind Permit Standards Order* for the proposition that the Commission has only established permitting conditions for projects under 25 megawatts.

37. This argument fails to consider the purpose of the general permit standards docket. The Commission had existing permit standards that were applicable to all site permit applications for LWECS. The 2007 legislation required the Commission to adopt standards for use by counties that had elected, under Minn. Stat. § 216F.08, to assume responsibility for processing applications for permits for LWECS with a combined nameplate capacity of less than 25 megawatts. The fact that the Commission complied with the legislation and provided this guidance to counties in the *General Wind Permit Standards Order* does not mean that the commission's existing standards, established in other dockets, became inapplicable to LWECS of 25 megawatts or more.

38. In addition, the County, Goodhue Wind Truth, the Coalition for Sensible Siting, and Belle Creek Township contend that the statutory provision giving counties the authority to adopt more stringent standards "stands on its own," so to speak, and provides unlimited authority for any county to adopt standards for LWECS that the Commission must, in turn, apply to projects located in the county unless there is good cause not to do so.

39. Statutory construction is a question of law. When a statute does not expressly define a term, but the term is defined in a related statute, the

---

<sup>47</sup> *Site Permit Docket*, Notice and Order for Hearing at 4 (Nov. 2, 2010).

<sup>48</sup> *Certificate of Need Docket*, Order Deferring Consideration of Application for Certificate of Need (Nov. 5, 2010).

statutes are *in pari materia* and should be construed together.<sup>49</sup> In addition, every law shall be construed, if possible, to give effect to all its provisions.<sup>50</sup>

40. Although Minn. Stat. § 216F.02(c) restricts local governments to the establishment of requirements for the siting and construction of SWECS, the amendment in Minn. Stat. § 216F.081 provides that a county “may” adopt ordinance standards for LWECS that are more stringent than those applied by the Commission. Minn. Stat. § 216F.081 does not indicate how these two apparently conflicting provisions are to be reconciled. This absence, however, does not render the statute ambiguous.

41. It is clear from a reading of the entire statute that a county generally has authority to regulate SWECS; a county may also assume the responsibility to issue permits for LWECS of less than 25 megawatts, pursuant to Minn. Stat. § 216F.08; when it does so, the county “shall” apply the commission’s general permit standards; it “may” grant a variance from a permit standard if the variance is in the public interest; and it “may” adopt by ordinance more stringent standards than those established by the commission. When those events have occurred, it makes sense that the Commission, when issuing site permits for projects of 25 megawatts or larger in that county, would be required to consider and apply any more stringent ordinance standards, so that all LWECS sited within a given county (regardless of whether they are under or over 25 megawatts and regardless of whether the county or the PUC issues the permit) are required to meet similar standards. In all other circumstances, a site permit for an LWECS issued by the Commission “supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances adopted by regional, county, local, and special purpose governments.”<sup>51</sup> This reading of the statute gives effect to all of its provisions and construes them consistently with each other. The ALJ has concluded that Chapter 216F unambiguously requires this interpretation.

42. The position that any county may regulate LWECS, regardless of size, and that the commission must apply those standards unless there is good cause not to do so, is an interpretation of Minn. Stat. § 216F.081 that conflicts expressly with other provisions of the Wind Siting Act. This interpretation reads both the limitation provided by 216F.08 (assumption of permitting responsibility for projects under 25 megawatts) and the pre-emption language of 216F.07 out of the Act. It cannot be the case that local regulation is completely pre-empted by a site permit issued by the Commission, and that the Commission is simultaneously obligated to consider and to apply the local regulation absent good cause. Moreover, this interpretation makes no practical sense. No county would go to the expense of assuming the permitting responsibilities for LWECS

---

<sup>49</sup> *In the Matter of the Commission’s Investigation of Issues Governed by Minnesota Statutes Section 216A.036*, 724 N.W.2d 743, 746 (Minn. App. 2006). See also *Minneapolis Police Officers Federation v. City of Minneapolis*, 481 N.W.2d 372, 374 (Minn. App. 1992) (statutes relating to the same subject matter must be construed as consistent with each other).

<sup>50</sup> Minn. Stat. § 645.16.

<sup>51</sup> Minn. Stat. § 216F.07.

of less than 25 megawatts, if it could avoid those responsibilities and achieve virtually the same end by passing an ordinance purporting to apply more stringent standards to LWECS of all sizes, which the commission would be obligated to consider and apply.

43. Because Chapter 216F is not ambiguous, it is not necessary to consider the evidence of legislative history provided by the OES.

44. If the statute were considered to be ambiguous, the Commission could consider the contemporaneous legislative history in determining the intention of the legislature.<sup>52</sup> The legislative history supports the interpretation that the legislature intended that the Commission would be obligated to consider and apply more stringent county standards only if those counties assumed the responsibility to process applications and issue permits for LWECS of less than 25 megawatts.<sup>53</sup>

45. Because Goodhue County has not assumed the responsibility to process applications and issue permits for LWECS of less than 25 megawatts, the commission is not obligated to consider or apply the more stringent standards established by the county ordinance.

46. If the Commission were to conclude nonetheless that it was obligated to consider and apply the ordinance standards unless there was good cause not to do so, it would have to determine the meaning of “good cause.”

47. The phrase is not defined in the statute, but the common legal meaning of “good cause” is a legally sufficient reason.<sup>54</sup> A conclusion as to whether there is or is not good cause is a mixed question of fact (what the record shows) and law (whether the showing is sufficient).<sup>55</sup> The Commission applied a similar good cause standard in Minn. Stat. § 216B.243, subd. 5, in deciding to extend the 12-month time period for determining whether to issue a certificate of need in this case.

## **VI. Setbacks from Property Lines.**

48. The County’s ordinance in section 4, subdivision 1, provides for a property line setback for commercial WECS of “3 RD Non-prevailing and 5 RD Prevailing.” It further provides that these setbacks shall be measured horizontally from the tower base. Prevailing wind is defined as the azimuth between 290 degrees to 30 degrees and between 130 degrees and 230 degrees.

---

<sup>52</sup> Minn. Stat. § 645.16.

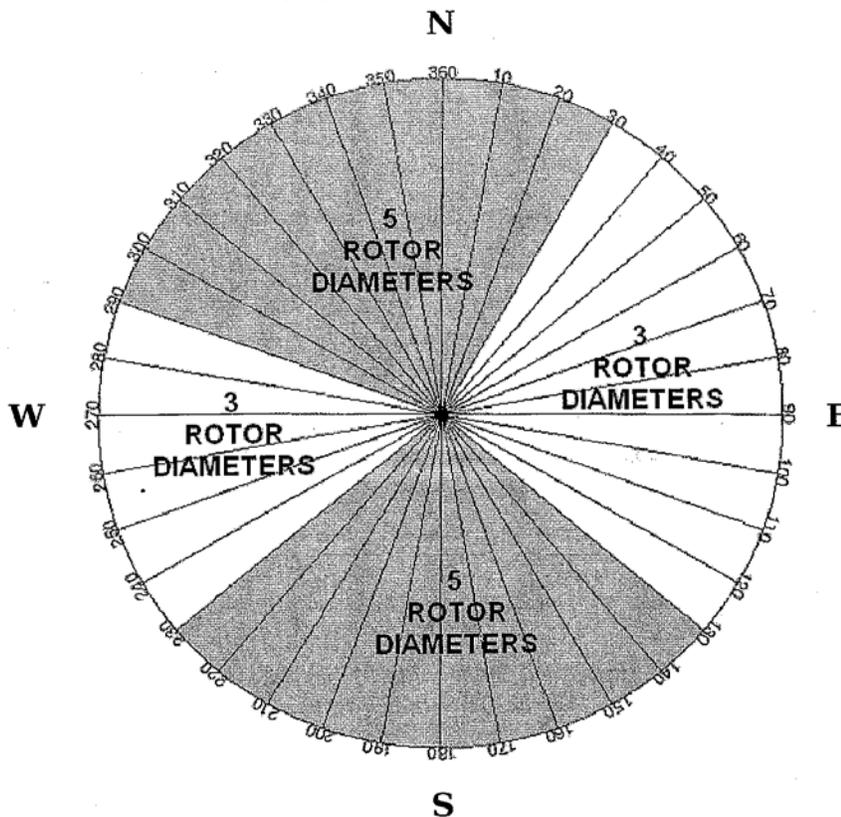
<sup>53</sup> OES Comments (Dec. 20, 2010), Attachments 4 and 5 (Affidavits of D. Pile and I. Bjorklund).

<sup>54</sup> Black’s Law Dictionary (9<sup>th</sup> ed. 2009).

<sup>55</sup> See *Averbeck v. State*, 791 N.W.2d 559, 561 (Minn. App. 2010).

Non-prevailing wind is defined as the azimuth between 30 degrees and 130 degrees and between 230 degrees and 290 degrees.<sup>56</sup>

49. The County's witnesses did not recall any discussion of the definition of prevailing wind in the meetings held in connection with adopting the ordinance.<sup>57</sup> The definition of prevailing wind and non-prevailing wind in the County ordinance was taken from a similar ordinance provision adopted in Nicollet County.<sup>58</sup> The Nicollet County ordinance contains the following depiction of the manner in which prevailing and non-prevailing winds are defined:<sup>59</sup>



50. The Commission's general wind permit standards do not reference setbacks from property lines, but provide instead that wind turbine towers shall not be placed less than 5 RD from all boundaries of a developer's site control area (including wind and land rights) on the predominant wind axis, which is typically north-south; and 3 RD on the secondary wind axis (typically east-west). This setback applies to all parcels for which the permittee does not control land

<sup>56</sup> Ex. 24B, Art. 18, § 4, subd. 1.

<sup>57</sup> Tr. 2:313-14 (Hanni); Tr. 3B:17 (Wozniak)

<sup>58</sup> Tr. 3B:12 (Wozniak); Nicollet County Wind Energy Conversion Systems Ordinance § 801.1 (adopted Aug. 11, 2009).

<sup>59</sup> Nicollet County Wind Energy Conversion Systems Ordinance, Appendix A.

and wind rights, including all public lands.<sup>60</sup> This standard is intended to protect the wind access rights of non-participating property owners and to minimize the effects of wind turbine-induced turbulence downwind.<sup>61</sup>

51. The County ordinance defines two 100° arcs for the prevailing wind direction, whereas the Commission's general wind permit standards allow an applicant to identify the predominant wind axis based on actual wind data obtained on the project site.<sup>62</sup>

52. The Applicant used wind data measured at meteorological towers built on the site to determine that the wind blows most often in the project area from the West/Northwest along a directional line of 300 degrees.<sup>63</sup>

53. Because the County ordinance defines prevailing wind direction in two 100° arcs, the 5 RD setback in the ordinance would apply to more than half of the compass rose. The application of this setback would preclude placement of 35 of the 50 turbines sited in the project area.<sup>64</sup>

54. To the extent that the ordinance is intended to protect the wind access rights of non-participating property owners, the manner in which prevailing wind is defined in the ordinance is both overly broad and less accurate than the definition used by the Commission. The ordinance uses a broadly defined proxy measurement rather than actual data to define prevailing wind direction, and it functions to greatly reduce the amount of land available for siting turbines. There is no evidence in the record to suggest that a setback of this magnitude is necessary to protect wind access rights of non-participating property owners.

55. The Administrative Law Judge concludes there is good cause not to apply this provision of the ordinance to the project.

## **VII. Setbacks from Neighboring Dwellings.**

56. The County's ordinance provision for a commercial WECS specifies a 750-foot setback from participating dwellings and a 10 RD setback for non-participating dwellings, unless the owner agrees to a lesser setback. No setback may be less than 750 feet.<sup>65</sup> The ordinance further provides that the setback for dwellings, schools, churches, health care facilities, and campgrounds shall be

---

<sup>60</sup> Ex. 21, Attachment A at 8.

<sup>61</sup> OES Comments (Dec. 20, 2010), Attachment 3 at 3.

<sup>62</sup> Ex. 3, Burdick Direct at 7.

<sup>63</sup> Ex. 3, Burdick Direct at 7-8.

<sup>64</sup> Ex. 3, Burdick Direct at 8-9 & Ex. 3D (comparing setback compliance under the Commission's standard and the County ordinance).

<sup>65</sup> Ex. 24B, Art. 18, § 4.

reciprocal unless the owner or authorized agent signs a letter of understanding waiving this setback, but no less than a 750 foot setback.<sup>66</sup>

57. The 10 RD setback in the ordinance was intended to function in lieu of more specific performance standards governing noise and shadow flicker.<sup>67</sup> The County acknowledged that the effects of flicker and noise generated by wind towers were difficult to ascertain:

It would be a matter of determining what level of burden on quiet enjoyment of neighboring properties would be reasonably acceptable. If we chose a decibel level or the number of hours of flicker, we would also have had to determine how and by whom these limits would be measured, how often, under what weather conditions and how costs of measurement would be paid.

...

Based upon staffing and financial resources, in addition to the logistical realities, the County Board chose to eliminate noise and flicker measurement issues by increasing the setback of towers from non-participating neighbors. The idea being that a greater distance would eliminate the need for noise or flicker limitations. We chose a sliding scale of a 10 rotor diameter setback instead of a specific distance setback. The purpose behind this decision was that the size of the tower would determine the setback distance. For instance a shorter tower would have less of a noise or flicker impact and could be sited closer to dwellings.<sup>68</sup>

58. The County also asserts that:

Recognizing the challenge of administering various performance standards for regulating such impacts as noise or shadow flicker the County Board settled on a setback from non-participating dwellings of 10 rotor diameters as a rational standard that would better protect the quality of life of County residents. A lesser setback of a minimum of 750' plus compliance with State Noise Standards included in the revised ordinance was intended to allow more flexibility in locating wind turbines in proximity to the dwellings of participating property owners or non-participating property

---

<sup>66</sup> Ex. 24B, Art. 18, § 4.

<sup>67</sup> Tr. 2:323-24 (Hanni).

<sup>68</sup> Ex. 24, Hanni Rebuttal at 2.

owners who may be willing to negotiate a setback of less than 10 rotor diameters with a Wind Energy Developer.<sup>69</sup>

59. In a portion of the ordinance relating to procedures (as opposed to setbacks), the ordinance provides:

The County may, at its discretion, require a Development Agreement to address specific technical procedures which may include but are not limited to: road use and repair, telephone line repair, site specific issues, payment in lieu of taxes, other financial securities, or real property value protection plans. The County may negotiate with applicants to limit night time noise to a limit of an annual average of 40 decibels (dBA), corresponding to the sound from a quiet street in a residential area (World Health Organization night noise guidelines for Europe).<sup>70</sup>

60. The Commission's general wind permit standards require that turbines must be set back at least 500 feet from all homes, plus whatever additional distance is necessary to meet state noise standards.<sup>71</sup> In siting wind turbines, the setback distance necessary to comply with this standard is calculated based on site layout and turbine for each residential receiver. Typically, a setback of between 750 and 1,500 feet is required to meet this standard, depending on turbine model, layout, and other site-specific conditions.<sup>72</sup>

61. The Applicant has proposed to site turbines using a setback of 1,500 feet from the dwellings of non-participants and a minimum of 1,000 feet for participating landowners. The OES recommended these setbacks as permit conditions.<sup>73</sup>

#### **A. State Noise Standards.**

62. Pursuant to Minn. Stat. § 116.07, the Minnesota Pollution Control Agency (MPCA) was charged with the responsibility to adopt standards describing the maximum levels of noise that may occur in the outdoor atmosphere. The statute provides, in relevant part, that:

[s]uch noise standards shall be premised upon scientific knowledge as well as effects based on technically substantiated criteria and

---

<sup>69</sup> Ex. 27, Wozniak Rebuttal at 5. Although the setback provisions in section 4 make no reference to state noise standards, a different part of the ordinance provides that all WECS shall comply with State of Minnesota Noise Standards. See Ex. 24B, Art. 18, § 9, subd. 1.

<sup>70</sup> Ex. 24 B, Art. 18, § 3, subd. 4.

<sup>71</sup> Ex. 21, Attachment A at 8.

<sup>72</sup> Ex. 21, Attachment A at 8; Ex. 6, Casey Direct at 3.

<sup>73</sup> OES Comments (Dec. 20, 2010), Attachment 2 (Comments and Recommendations of the Minnesota Office of Energy Security, Energy Facility Permitting Staff dated Oct. 13, 2010); Attachment 3 (Supplemental Comments dated Oct. 20, 2010).

commonly accepted practices. No local governing unit shall set standards describing the maximum levels of sound pressure which are more stringent than those set by the Pollution Control Agency.<sup>74</sup>

63. The noise standards for all outdoor noise are established in Minn. R. Chapter 7030. The MPCA's nighttime noise standard in residential areas is 50 dB(A) at L50, which means that noise levels cannot exceed 50 dB(A) more than 50% of the time during one hour.<sup>75</sup> This exposure is based on measurements to be made outdoors, pursuant to rules specifying equipment specifications, calibration, measurement procedures, and data documentation.<sup>76</sup>

64. The rule setting this standard further provides:

These standards describe the limiting levels of sound established on the basis of present knowledge for the preservation of public health and welfare. These standards are consistent with speech, sleep, annoyance, and hearing conservation requirements for receivers within areas grouped according to land activities by the noise area classification (NAC) system established [in another rule part].<sup>77</sup>

65. According to the MPCA, the decibel levels of common noise sources are as follows:<sup>78</sup>

|     |  |
|-----|--|
| 140 | Jet engine (at 25 meters)                |
| 130 | Jet aircraft (at 100 meters)             |
| 120 | Rock concert                             |
| 110 | Pneumatic chipper (at one meter)         |
| 100 | Jackhammer (at one meter)                |
| 90  | Chainsaw, lawnmower (at one meter)       |
| 80  | Heavy truck traffic                      |
| 70  | Business office, vacuum cleaner          |
| 60  | Conversational speech, typical TV volume |
| 50  | Library                                  |
| 40  | Bedroom                                  |
| 30  | Secluded woods                           |
| 20  | Whisper                                  |

66. The MPCA regulates noise from specific sources, without regard to the level of background noise. When the distance from a point source of sound is doubled, the sound level decreases by six decibels. For example, a sound that is measured at 60 dB(A) from 50 feet away is measured at 48 dB(A) from 200

---

<sup>74</sup> Minn. Stat. § 116.07.

<sup>75</sup> Minn. R. 7030.0040, subp. 2.

<sup>76</sup> Minn. R. 7060.0060, subps. 1-5.

<sup>77</sup> Minn. R. 7030.0040, subp. 1.

<sup>78</sup> Ex. 24A at 2599, 2602.

feet away. To determine the cumulative impact of two sources of noise at the same level, if they are equidistant and at fixed locations, the decibel level would increase by three.<sup>79</sup> If the sources of sound are more than 10 dB apart, there is no incremental increase in decibel level, because the louder noise predominates; and when sources of noise are less than 10 dB apart, the magnitude of increase in decibel level decreases from 3 dB down to zero.<sup>80</sup>

67. Accordingly, sound levels from two or more sources cannot be arithmetically added together to determine the overall sound level. Existing ambient noise levels should not be added to noise produced by a turbine to determine the level of noise at a receptor from all sources.

68. A change in decibel level corresponds to a perceived change in loudness as follows:<sup>81</sup>

- +/- 1 dB(A) ..... Not noticeable
- +/- 3 dB(A) ..... Threshold of perception
- +/- 5 dB(A) ..... Noticeable change
- +/- 10 dB(A) ..... Twice (or half) as loud
- +/- 20 dB(A) ..... Four times (or one-fourth) as loud

69. The human ear cannot hear lower frequencies as well as higher frequencies. The A-weighting scale is used to duplicate the sensitivity of the human ear. At 100 Hertz, the A-weighting scale filters out approximately 20 dB from an incoming signal before it is combined with levels from other frequency ranges to produce an A-weighted sound level. The C-weighting scale represents actual sound pressure as it is received by a sound level meter.<sup>82</sup>

70. The noise level audible in any dwelling will depend on the distance from a noise source and the attenuation provided by the surrounding environment (atmosphere, terrain, construction type and insulation of the dwelling).<sup>83</sup>

## **B. Applicant's Noise Study.**

71. Based on the manufacturer's specifications for the turbines proposed for use in this project, a setback of 750 feet for one turbine would meet MPCA noise standards. In this case, because multiple turbines could potentially impact a residence, the Applicant conducted a sound modeling study in June

---

<sup>79</sup> Ex. 24A at 2599, 2602-03.

<sup>80</sup> Ex. 6, Casey Direct at 3-4; Tr. 2:213-20 (Casey).

<sup>81</sup> Ex. 24A at 2605.

<sup>82</sup> Ex. 24A at 2605.

<sup>83</sup> Ex. 24A at 2601.

2010 to determine the maximum sound level from the cumulative effect of all proposed turbines.

72. The study showed that existing ambient noise levels in the project area ranged from 33 to 52 dB(A) for hourly median noise. Nighttime noise in the quietest locations (away from traffic areas, near residences and farm buildings) ranged from 33 to 43 dB(A) in Location 1 and ranged from 35 to 45 dB(A) in Location 2. These results are consistent with noise levels measured in rural settings with high quality wind resources.<sup>84</sup>

73. The study used acoustic analysis software called Cadna-A to calculate noise levels from the proposed wind turbines. This software incorporates internationally accepted acoustical standards. In modeling the noise produced by wind turbines, the study used conservative assumptions with regard to terrain (flat), level of absorption provided by agricultural fields (70%), and wind (assumed all turbines were operating simultaneously at their highest rated operating speed). The average modeled level of noise from wind turbines, based on these assumptions, was 31 dBA; the median modeled level was 32 dBA; and the maximum modeled level was 43 dBA.<sup>85</sup> The average and median noise levels calculated for the turbines are lower than the existing ambient sound conditions measured in the noise study. The maximum noise level calculated for the turbines at any residence is 7 dBA below the MPCA L50 noise limit.<sup>86</sup>

74. The study results demonstrate that all of the wind turbine sites proposed by the Applicant are located sufficiently far from dwellings to meet the MPCA noise standards.<sup>87</sup> The closest distance between an existing home and a proposed turbine in this project is 1,152 ft from the home of a participant.<sup>88</sup>

### **C. Applicant's Shadow Flicker Study.**

75. Shadow flicker is the alternating changes in light intensity caused by moving rotor blades at a given stationary location, such as the window of a home. In order for shadow flicker to occur, three conditions must be met: the sun must be shining, with no clouds obscuring the sun; the rotor blades must be spinning and be located between the receptor and the sun; and the receptor must be sufficiently close to the turbine to be able to distinguish a shadow created by the turbine. The intensity and frequency of flicker at a given receptor are determined by factors such as the sun angle and sun path, turbine and receptor locations, cloud cover and degree of visibility, wind direction, wind speed, nearby obstacles, and local topography.<sup>89</sup>

---

<sup>84</sup> Ex. 6, Casey Direct, Attachment A at 8, 12 & 13.

<sup>85</sup> *Id.*, Attachment A at 10-11.

<sup>86</sup> Ex. 6, Casey Direct at 5-6.

<sup>87</sup> *Id.*, Attachment A at 11.

<sup>88</sup> Ex. 6, Casey Direct at 6.

<sup>89</sup> Ex. 7, Zilka Direct at 2-3 & Attachment A.

76. HDR Engineering prepared a shadow flicker analysis for the Applicant using the most recent actual coordinates of homes and turbines, digital elevation data, and physical characteristics of the turbines proposed for this project. The model incorporates sunshine probability data from the National Weather Service and wind direction data from meteorological towers in the project area. It makes conservative assumptions that the turbines will operate 100 percent of the time; that receptors can be impacted from all directions; and that no shading or screening from buildings or vegetative cover will take place.<sup>90</sup>

77. The study modeled actual expected flicker based on these assumptions for the 289 homes located within 6,562 feet of a project turbine. The following results were obtained:

| Expected Hours/Yr | No. of Receptors | % of Receptors <sup>91</sup> |
|-------------------|------------------|------------------------------|
| 0                 | 69               | 23.9                         |
| 0.01-10           | 179              | 61.9                         |
| 10-20             | 30               | 10.4                         |
| 20-30             | 7                | 2.4                          |
| 30-40             | 4                | 1.4                          |

78. Based on these results, 278 homes (96.2%) are expected to experience less than 20 hours of shadow flicker per year; 248 (85.8%) are expected to experience less than 10 hours of shadow flicker per year. Of the 11 homes that are expected to experience more than 20 hours of shadow flicker per year, five are participants and six are non-participants. The greatest amount of expected shadow flicker at the home of a participant is 39 hours, 21 minutes per year; the greatest amount of expected shadow flicker at the home of a nonparticipant is 33 hours, 11 minutes. There are 4,462 annual daylight hours in Goodhue County, which means that the maximum exposures for both participants and non-participants is less than one percent of the available daylight hours per year.<sup>92</sup>

79. The Commission has no setback standards that are explicitly directed at shadow flicker. The proposed site permit recommended by OES/EFP in this case would require the Applicant to provide, at least ten working days prior to the pre-construction meeting, data on shadow flicker impacts on each residence for both participating and non-participating landowners. It further provides that the Applicant “shall provide documentation on its efforts to minimize shadow flicker impacts.”<sup>93</sup> In addition, the Commission’s general wind permit standards require that applicants establish procedures for handling and reporting

<sup>90</sup> Ex. 7, Zilka Direct at 4-5 & Attachment A.

<sup>91</sup> Ex. 7, Zilka Direct Attachment A at 6.

<sup>92</sup> Ex. 7, Zilka Direct at 5 & Attachment A. These results are virtually identical to a study HDR conducted in July 2010. See Ex. 24A at 538-611.

<sup>93</sup> OES Proposed Site Permit § 6.2.

complaints to the Commission concerning “any part of the LWECS in accordance with the procedures provided in permit.”<sup>94</sup>

80. The Nicollet County ordinance, upon which the County’s ordinance was based, provides for a limit of 30 hours per year for any receptor within a one-mile radius of each turbine.<sup>95</sup>

#### **D. Application of the Ordinance.**

81. A 10 RD setback is not a fixed distance but is determined by the length of the turbine rotor used in a particular project. In this case, a 10 RD setback amounts to 2,707 feet, or more than one-half mile from a nonparticipating dwelling.<sup>96</sup>

82. If the County ordinance were applied, the 10 RD setback for non-participating residences would preclude placement of 43 of the 50 turbines proposed for this project.<sup>97</sup> Although the ordinance would allow a 750-foot setback for participating owners, the 2,707-ft setback for nonparticipants essentially would “swallow” the shorter setback for participants.<sup>98</sup> A single non-participating landowner could preclude the siting of a wind turbine in an area of approximately four-fifths of a square mile surrounding the non-participant’s property.<sup>99</sup>

83. The Applicant has examined whether the project could proceed under the ordinance by using fewer, larger turbines at the same locations; but because larger rotor diameters would result in an even longer setback distance, this option was not feasible.<sup>100</sup> The Applicant also considered use of a smaller turbine, which would result in a shorter setback distance; but this option would reduce the project size to 36 megawatts.<sup>101</sup> Finally, the Applicant considered acquiring more land rights so that the project could be sited with the proposed equipment in compliance with the 10-RD setback. This analysis showed that the 10-RD standard would require so much additional land (approximately seven times the acreage already negotiated with landowners) that the project would become cost-prohibitive.<sup>102</sup>

---

<sup>94</sup> Ex. 21, Attachment A at 15; Proposed Site Permit, Attachment 2.

<sup>95</sup> Nicollet County Ordinance § 904.1.

<sup>96</sup> Ex. 3, Burdick Direct at 15. One-half mile is 2,640 ft.

<sup>97</sup> Ex. 3, Burdick Direct at 16 & Attachment 3F.

<sup>98</sup> *Id.*

<sup>99</sup> Ex. 10, Burdick Surrebuttal at 5.

<sup>100</sup> Ex. 3, Burdick Direct at 17.

<sup>101</sup> *Id.* at 18.

<sup>102</sup> Ex. 2, Robertson Direct at 4; Tr. 1:199 (Burdick).

84. The County was aware when the ordinance was passed that a setback of this magnitude would leave very little area available for siting LWECS.<sup>103</sup>

85. Although the other parties have suggested that the Applicant could re-negotiate its leases and participation agreements to take advantage of the 750-foot setback allowed for participants, or could offer to pay more money to nonparticipants in order to obtain more land rights,<sup>104</sup> the record is clear that application of the 10-RD setback to this project (as it has been developed to date) will effectively preclude the entire project. The assertion that the Applicant might be able to negotiate waivers of this requirement with those who have declined to participate in the past is speculation that is not founded in any evidence.

#### **E. Evidence Regarding Health and Safety to Support the 10-RD Setback.**

86. There is no scientific support in peer-reviewed literature for the proposition that wind turbines cause any adverse health effects in humans.<sup>105</sup> Although some people respond negatively to the noise qualities generated by the operation of wind turbines, there is no scientific data to show that wind turbines cause any disease process or specific health condition.<sup>106</sup> In addition, there are no known human health effects from shadow flicker generated by wind turbines in the scientific literature.<sup>107</sup>

87. In 2009, the Minnesota Department of Health evaluated the public health effects of wind turbines by reviewing the literature and modeling shadow flicker.<sup>108</sup> In reviewing the literature, the Department of Health noted that human sensitivity to sound is variable and that low frequency noise accompanied by shaking, vibration, or rattling may be less tolerable to people. It noted that noise measured on the dB(C) scale (which, as noted above, includes more low-frequency noise that is not audible to the human ear) may better predict annoyance than noise measured on the dB(A) scale.<sup>109</sup>

88. In its model of shadow flicker, the Department assumed a receptor 300 meters (984 ft) perpendicular to, and in the shadow of the blades of a wind turbine. This model suggested that the receptor could be in the flicker shadow of

---

<sup>103</sup> Ex. 25C; Ex. 29; Tr. 3B:23 (Wozniak).

<sup>104</sup> See Post-Hearing Memorandum of Belle Creek Township at 6-7 (“The negotiated price of a limited waiver of the setback requirement would likely be less than the lease payments to an owner who agrees to turn over a portion of his property to AWA for the placement of a turbine on his property”); Goodhue County Brief at 21; Post-Hearing Brief of Goodhue Wind Truth at 6-7.

<sup>105</sup> See generally Ex. 11, Roberts Surrebuttal & Attachment B.

<sup>106</sup> Ex. 11, Roberts Surrebuttal Attachment B at 7.

<sup>107</sup> Ex. 11, Roberts Surrebuttal at 6.

<sup>108</sup> Ex. 24A at 1923-1954. Other copies appear at 2252-83, 3727-58, and 5038-69.

<sup>109</sup> Ex. 24A at 1944-45.

the rotating blade for almost one and one-half hours per day.<sup>110</sup> The report does not indicate over what period of time this exposure could occur. The paper then provides “With current wind turbine designs, flicker should not be an issue at distances over 10 rotational diameters ( $\approx$  1000 meters or 1 km (0.6 mi) for most current wind turbines).”<sup>111</sup> It is unclear whether this conclusion is based on the modeled results or on a recommendation made in the literature.

89. The Department of Health made the following recommendations to assure informed decisions, and added that any noise criteria beyond current state standards used for placement of wind turbines should reflect priorities and attitudes of the community:

- Wind turbine noise estimates should include cumulative impacts (40-50 dB(A) isopleths) of all wind turbines.
- Isopleths for dB(C) – dB(A) greater than 10 dB should also be determined to evaluate the low frequency noise component.
- Potential impacts from shadow flicker and turbine visibility should be evaluated.<sup>112</sup>

90. The Department of Health also noted that the noise standards set by the MPCA appear to “underweight” low-frequency noise by using the dB(A) measurement. Although this was not included in its recommendations, the Department noted that in other countries, a 5 dB “penalty” is added to measured levels of dB(A) as a surrogate for low-frequency noise, when the difference between measured dB(A) and dB(C) levels is more than 10 dB.<sup>113</sup>

91. The Applicant’s noise study modeled the cumulative impacts of all wind turbines, as recommended by the Department of Health. Although it did not model low-frequency noise, because state standards do not require it, the maximum dB(A) measurement of 43 would still meet MPCA standards even if the five dB “penalty” were added to account for low-frequency noise. The Applicant also evaluated shadow flicker impacts using a much more sophisticated modeling system than the Department of Health appears to have used, and its results showed that, using a greater setback distance, 96% of homes in the project area could be exposed to some degree of shadow flicker less than 20 hours per year.

92. Some of the other parties appear to take the position that they are not obligated to direct the Commission’s attention to any evidence regarding health and safety to support the setback, as this would constitute an “impermissible shift in the burden of proof” onto them and away from the

---

<sup>110</sup> Ex. 24A at 1939.

<sup>111</sup> E. 24A at 1939.

<sup>112</sup> Ex. 24A at 1951.

<sup>113</sup> Ex. 24A at 1945-47.

Applicant.<sup>114</sup> The Administrative Law Judge advised these parties at the outset of this proceeding that this contested case is not a due process challenge to the ordinance.<sup>115</sup> The Applicant is not required to show that the County acted unlawfully in the adoption of the ordinance or that the terms of the ordinance lack a rational basis. Rather, this is a contested case proceeding for the purpose of developing the record as directed by the Commission, so that the Commission may determine for itself its obligation to consider and apply the ordinance under Minn. Stat. § 216F.081 and to determine, if appropriate, whether there is good cause not to apply any provision of the ordinance.

93. Subject to their arguments on burden-shifting, the County and the Coalition for Sensible Siting both cited the Minnesota Department of Health White Paper as support for the 10-RD setback. The Minnesota Department of Health did not, however, recommend a 10-RD setback. What the Minnesota Department of Health said was that “[w]ith current wind turbine designs, flicker should not be an issue at distances over 10 rotational diameters.” The Applicant has demonstrated that shadow flicker should not be a significant issue for the vast majority of participants and nonparticipants in this project area, using a 1,500-ft setback for nonparticipants.

94. In 1999, the World Health Organization issued a report on community noise concluding that, for a good night’s sleep, the equivalent sound level should not exceed 30 dB(A) for continuous background noise over a period of eight hours, and individual noise events exceeding 45 dB(A) should be avoided.<sup>116</sup> The authors recommended that the governments adopt the guideline values as long-term targets, because the report acknowledged that about 30% of the population in European Union countries was exposed to night-time equivalent sound pressure levels exceeding 55 dB(A).<sup>117</sup>

95. In 2009, the World Health Organization issued an updated report on night noise guidelines for Europe. This report recommended a target night-time noise guideline of 40 dB(A) as measured outdoors, averaged over one year; and an interim target of 55 dB(A) as measured outdoors, averaged over one year, for countries that could not achieve the target level in the short term.<sup>118</sup> This is an outdoor noise level, which would correspond to an indoor equivalent sound level of 15 dB(A) lower, assuming slightly open windows and some insulation in a dwelling.<sup>119</sup> The report encouraged member states in the European Union to gradually reduce the proportion of the population exposed to

---

<sup>114</sup> Goodhue County Brief at 14; Coalition for Sensible Siting Corrected Post-Hearing Memorandum at 6 (PUC “has no authority to question the County’s basis or justification for its ordinances”).

<sup>115</sup> See First Prehearing Order ¶ 14 (Dec. 8, 2010).

<sup>116</sup> Ex. 24A at 4474, 4480 (World Health Organization, *Guidelines for Community Noise*, Geneva 1999).

<sup>117</sup> Ex. 24A at 4467, 4482, 4555.

<sup>118</sup> Ex. 24A, Appendix at 63, 184 (World Health Organization, *Night Noise Guidelines for Europe*, Geneva 2009)

<sup>119</sup> Ex. 24A, Appendix at 174

levels over the interim target level within the context of meeting wider sustainable development objectives.<sup>120</sup>

96. Based on the WHO reports, others have advocated even lower night-time noise limits for rural communities.<sup>121</sup>

97. The MPCA standards are consistent with the interim target levels recently recommended by the WHO; however, regardless of the recommendations made by the WHO or others, the MPCA standards are the law in the State of Minnesota, and local authorities are not free to disregard them.

98. There is no evidence that turbines with shorter rotor diameters necessarily generate less noise or shadow flicker than those with longer rotor diameters. Different turbines with the same rotor diameter length have different maximum sound power levels, and the loudest turbines are not necessarily those with the longest rotor diameters.<sup>122</sup>

99. The 10-RD setback is an overbroad method of regulating both noise and shadow flicker because it would preclude the siting of wind turbines that meet state noise requirements and that are expected to generate relatively small amounts of shadow flicker for most homes in the project area.

100. The County's use of a 10-RD setback, as an indirect method of regulating noise, conflicts with Minn. Stat. § 116.07, which delegates authority to regulate noise solely to the MPCA and precludes local authorities from setting more stringent standards. If the operation of the project exceeds noise standards that are permitted, the Commission has the authority to address and ensure the resolution of any complaints.

101. Although the Commission's general wind permit standards do not directly address shadow flicker, the proposed site permit could include conditions to address potential problems with shadow flicker.<sup>123</sup> For example, in addition to requiring documentation of the Applicant's efforts to minimize shadow flicker impacts, the Commission could require the filing of a plan to mitigate any complaints related to shadow flicker, through methods such as landscaping or use of blackout shades. It is inequitable to expect that non-participating homeowners, in particular, should be wholly responsible for mitigating those complaints. Such a permit condition would be a more targeted method of regulating potential problems with shadow flicker.

---

<sup>120</sup> Ex. 24A, Appendix at 184; Ex. 32B, Vol. II, Tabs 1 & 2.

<sup>121</sup> Ex. 24A, Appendix at 5 (G.W. Kamperman and R.R. James, *The "How to" Guide to Siting Wind Turbines to Prevent Health Risks from Sound*, Oct. 2008).

<sup>122</sup> Ex. 9, Casey Surrebuttal at 1-2.

<sup>123</sup> See Minn. R. 7854.1000 (commission may include in a site permit conditions that are reasonable to protect the environment, enhance sustainable development, and promote the efficient use of resources). The Administrative Law Judge notes that the 11 homes that would be subject to more than 20 hours per year of shadow flicker might be considered subject to more than minimal amounts of flicker.

102. For all the above reasons, there is good cause not to apply this section of the ordinance to the project.

### **VIII. Setbacks for Roads.**

103. The County's ordinance provision for a commercial WECS provides for a public road setback of 1.1 times the height of a turbine, but allows for a possible reduction for minimum maintenance roads or roads with an average daily traffic count of less than ten.<sup>124</sup> This provision also applies to future rights-of-way if a "planned changed or expanded right-of-way is known."

104. The Commission's general wind permit standards call for a minimum setback of 250 feet from the edge of the nearest road right-of-way.<sup>125</sup> In addition, the Commission typically requires the permittee to make satisfactory arrangements for road use, access road intersections, maintenance and repair of road damage with the governmental jurisdiction having authority over each road. A permittee is also required to promptly repair any private roads, driveways, or lanes that are damaged, unless otherwise negotiated with the landowner.<sup>126</sup>

105. Based on the height of the turbines proposed in this case, the County ordinance would require a setback of 438 feet from the edge of all road rights of way.<sup>127</sup>

106. The Applicant's proposed site plan does not place any wind turbine within 438 feet from the edge of any road right of way. Although the County ordinance provides for a setback that is more stringent than the Commission's general wind permit standards, the Applicant's site plan would comply with both standards.<sup>128</sup>

### **IX. Setbacks for Other Rights of Way.**

107. The ordinance provision for other rights of way provides for a setback of the lesser of (a) 1.1 times the total height of a turbine, or (b) the distance of the fall zone, as certified by a professional engineer, plus 10 feet.<sup>129</sup> The fall zone is defined as the area that is the furthest distance from the tower base in which a guyed tower will collapse in the event of a structural failure. This area is less than the total height of the structure.<sup>130</sup> The ordinance does not specifically define "other rights of way," but indicates that "railroads, power lines, etc." are included in this category.<sup>131</sup>

---

<sup>124</sup> Ex. 24B, Art. 18, § 4, subd. 1.

<sup>125</sup> Ex. 21, Attachment A at 8.

<sup>126</sup> Ex. 21, Attachment A at 10-11.

<sup>127</sup> Ex. 3, Burdick Direct at 10.

<sup>128</sup> Ex. 3, Burdick Direct at 10.

<sup>129</sup> Ex. 24B, Art. 18, § 4, subd. 1.

<sup>130</sup> Ex. 24B, Art. 18, § 2, subd. 9.

<sup>131</sup> Ex. 24B, Art. 18, § 4, subd. 1.

108. The Applicant does not propose to use any guyed towers in this project.<sup>132</sup> If the ordinance were applied in this case the “fall zone” language would be inapplicable, and the setback from other rights of way would be 1.1 times the total height of a turbine.

109. The Commission’s general wind permit standards do not specifically address setbacks from other rights of way. These setbacks have been negotiated by applicants and the entities controlling other rights-of-way within the site permit boundaries.<sup>133</sup>

110. The Applicant has negotiated setback agreements with the owners of all rights of way that would be impacted by placement of a wind turbine near their property.<sup>134</sup>

111. If the County ordinance were interpreted to include pipeline easements, application of this setback would preclude the placement of four of the 50 proposed turbines.<sup>135</sup>

112. There is no evidence in the record that any owner of a right-of-way in the project area has failed to adequately protect the right-of-way through the agreements negotiated with the Applicant.

113. For the above reasons, there is good cause not to apply this provision of the ordinance to the project.

## **X. Setbacks for Public Conservation Lands.**

114. The County ordinance provides for a setback of “3 RD Non-Prevailing and 5 RD Prevailing” from public conservation lands. Public conservation lands are defined as:

Land owned in fee title by State or Federal agencies and managed specifically for conservation purposes, including but not limited to State Wildlife Management Areas, State Parks, State Scientific and Natural Areas, federal Wildlife Refuges and Waterfowl Production Areas. For the purposes of this section public conservation lands will also include lands owned in fee title by non-profit conservation organizations. Public conservation lands do not include private

---

<sup>132</sup> Tr. 3B:50.

<sup>133</sup> See, e.g., Ex. 21, Attachment A at 11 (permit condition requiring repair of private roads “unless otherwise negotiated with landowner”); OES Comments (Dec. 20, 2010), Attachment 1 at 4.

<sup>134</sup> Ex. 3, Burdick Direct at 11.

<sup>135</sup> Ex. 3, Burdick Direct at 11.

lands upon which conservation easements have been sold to public agencies or non-profit conservation organizations.<sup>136</sup>

115. The ordinance defines prevailing and non-prevailing winds in the same manner as for the property line setback (with prevailing wind defined as two fixed 100° arcs, as opposed to wind direction determined by actual measurement). There is no definition for “non-profit conservation organization” in the ordinance.

116. The Commission’s general wind permit standards provide that the wind access buffer (the setback of 5 RD prevailing by 3 RD non-prevailing) applies to all parcels for which the permittee does not control land and wind rights, including all public lands. As noted above, however, the Commission permits the use of actual data to determine the direction of prevailing and non-prevailing winds. The Commission’s general wind permit standards also provide that setbacks from state trails and other recreational trails shall be considered on a case-by-case basis.<sup>137</sup>

117. The Applicant has filed no testimony indicating that application of this setback would affect the project. The County offered no evidence as to the need for a setback of this magnitude for public lands or the reason why this setback was selected.<sup>138</sup>

118. The County’s ordinance standard is more stringent because of its definition of prevailing and non-prevailing winds; but the Commission’s standard could be more stringent than the ordinance if state trails or recreational trails were involved. The Administrative Law Judge concludes that this portion of the ordinance is overbroad because the definition of prevailing and non-prevailing winds uses a fixed proxy in lieu of actual data. The ordinance is also ambiguous because it fails to define a “non-profit conservation organization.” There is good cause not to apply this section of the ordinance to the project.

## **XI. Setbacks for Wetlands.**

119. The County’s ordinance provision for a commercial WECS provides for a wetlands setback of either (a) 1,000 feet, or (b) “3 RD non-prevailing and 5 RD prevailing,” but it does not define the term “wetland.” The wind direction is defined in the same manner as for property line setbacks, using a 100° arc instead of actual measurements. It is unclear from the ordinance when a 1,000-ft setback would be required, as opposed to a 3 RD by 5 RD setback.

---

<sup>136</sup> Ex. 24B, Art. 18, § 2, subd. 25.

<sup>137</sup> Ex. 21, Attachment A at 8.

<sup>138</sup> The Nicollet County ordinance has a similar “public conservation lands” setback, but that ordinance provides for a setback of 1.1 times the total height. See Nicollet County Wind Energy Conversion Systems Ordinance § 801.1.

120. The County's witnesses recalled very little if any discussion of the wetlands setback in the meetings that led to passage of the ordinance. This provision was modeled on the Nicollet County ordinance.<sup>139</sup>

121. In the *General Wind Permit Standards Docket*, the DNR initially recommended a 1,000 foot setback from all wetlands, but it ultimately recommended deferring action on that proposal. The Commission consequently retained its practice of prohibiting placement of turbines in wetlands, but requiring no specific setback. The Commission indicated its willingness to consider this issue in the future when and if the record were further developed.<sup>140</sup>

122. In siting turbines near wetlands, the Commission generally defers to the requirements of other state, local, and federal agencies charged with regulating wetlands. The proposed site permit requires the Applicant to provide a desktop and field inventory of potentially impacted native prairies, wetlands, and any other biologically sensitive areas within the site and to submit the results to the Commission and the DNR. The proposed site permit also requires compliance with all permits or licenses issued by various state and federal agencies, including Minnesota Pollution Control Agency storm water permits and a DNR license to cross public lands and water, public waters work permits, and state protected species consultations. The Commission's permit standards would allow an electric collector and feeder line to cross or be placed in public waters or public water wetlands, subject to permits obtained from the DNR and other government entities.

123. Wetlands are regulated by the Board of Water and Soil Resources, the County Soil and Water Conservation District, the U.S. Army Corps of Engineers, and the DNR.<sup>141</sup>

124. The Applicant submitted a wetlands delineation report prepared by Westwood Professional Services to the St. Paul District of the U.S. Army Corps of Engineers and the Goodhue County Soil and Water Conservation District, in support of a wetland boundary and type determination requested under Minn. R. 8420.0310. The report delineated and located portions of 45 wetlands within the 4.10 sq-mile project construction area, defined as all areas that would potentially incur temporary or permanent disturbance by construction of wind turbine generators, access roads, underground electrical collection cables, crane paths, and substations. All of the wetlands are expected to be regulated under the Minnesota Wetland Conservation Act, and 40 of them are also expected to be regulated under the federal Clean Water Act. Most of the wetlands in this area are associated with ditches and channelized drainages, which are linear features

---

<sup>139</sup> Tr. 3B:14 (Wozniak); Tr. 2:304 (Hanni). The Nicollet County ordinance, however, defines a wetland as USFW Types III, IV, and V. See Nicollet County Wind Energy Conversion Systems Ordinance § 801.1.

<sup>140</sup> Ex. 21 at 4.

<sup>141</sup> Tr. 3A:12.

that are difficult to avoid. All but two of the delineated wetlands are substantially disturbed by ditching, sedimentation, and tillage from agricultural activities.<sup>142</sup>

125. The Applicant has met twice with the Technical Evaluation Panel (composed of employees of the Board of Soil and Water Resources, the County Soil and Water Conservation District, and the U.S. Army Corps of Engineers). Four wetlands were eliminated from the project construction area because of specific impacts, and they were replaced with different wetlands. Although the permitting process is not yet final, the Applicant has determined to date that 0.225 acres of wetlands would be permanently impacted by access roads and subject to replacement through a wetland bank credit.<sup>143</sup>

126. Based on current plans, the turbine nearest to a delineated wetland would be 275 ft away.<sup>144</sup>

127. Wetlands are shaped irregularly, and it is difficult to apply a distance setback framed in terms of wind direction to an irregular shape. Assuming a constant 5-RD setback (1,353 ft) applied to each wetland in the project area, this setback requirement would eliminate 45 of the proposed 50 turbines.<sup>145</sup> This “worst case” analysis might overstate the impact somewhat, but it is difficult to be more precise based on the record.

128. There is no evidence that wetlands require a setback of this magnitude to protect the environment. Wetlands and wind turbines are mutually exclusive, in that wetlands are typically located in areas of low elevation, and wind turbines are located at higher elevations.<sup>146</sup> It would not be possible to build a turbine tower in land saturated with water and meet required construction and engineering standards.<sup>147</sup>

129. The types of wetlands that are typical in the project construction area are not good habitats for birds.<sup>148</sup> A setback requirement of 1,000 feet or more might place a turbine tower near a forested area and possibly result in more avian impacts than if the turbine were sited closer to a wetland.<sup>149</sup>

130. The County’s setback provision is ambiguous, in that it is unclear from the terms when a setback of 1,000 feet or more would be required. It is also a crude method of protecting wetlands, compared to the individualized analysis of the impacts on the quantity, quality, and biological diversity of wetlands conducted by the Technical Evaluation Panel that represents all the regulating

---

<sup>142</sup> Ex. 5, Peterson Direct at Attachment A.

<sup>143</sup> Ex. 5, Peterson Direct at 4-6.

<sup>144</sup> Ex. 5, Peterson Direct at 4.

<sup>145</sup> Ex. 3, Burdick Direct at 13 & Attachment 3-E.

<sup>146</sup> Tr. 3A:61 (Peterson).

<sup>147</sup> Tr. 3A:54 (Peterson).

<sup>148</sup> Tr. 3A:26, 36-37 (Peterson).

<sup>149</sup> *Id.*

agencies. For all the above reasons, there is good cause not to apply this provision of the ordinance to the project.

## **XII. Setbacks for Other Structures.**

131. The County Ordinance provides for a setback of commercial WECS from “other structures” of “[t]he fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.”<sup>150</sup> The ordinance does not define “other structures.” As noted above, the definition of “fall zone” applies only to guyed towers; because this project would not involve guyed towers, that portion would not be applicable. The ordinance therefore would call for a setback of 1.1 times the total height for “other structures.”

132. The Applicant has not identified this provision of the ordinance as one that would impact this project.

133. Because of its ambiguity as to the type of structure it would apply to, there is good cause not to apply this ordinance provision to the project.

## **XIII. Setbacks for Other Existing WECS and Internal Turbine Spacing.**

134. The County ordinance provides for a setback from other existing WECS and internal turbine spacing of “3 RD non-prevailing and 5 RD prevailing.” In this section of the ordinance, prevailing wind appears to be defined differently than in other sections pertaining to setbacks. “Prevailing wind” is defined to mean the predominant wind direction in Goodhue County; non-prevailing wind is defined as the non-dominant wind direction in Goodhue County.<sup>151</sup>

135. The Commission has no general permit standards pertaining to internal turbine spacing, but the proposed site permit provides that turbine towers shall be spaced no closer than three RD in the non-prevailing wind directions and five RD on the prevailing wind directions. If required during final micro-siting of the turbine towers to account for topographic conditions, up to 20 percent of the towers may be sited closer than the above spacing, but the permittee shall minimize the need to site the turbine towers closer.<sup>152</sup>

136. The County ordinance and the proposed site permit are similar, but the ordinance does not allow for closer spacing of up to 20 percent of the towers. It is more stringent, but the Applicant has not indicated that it has any objection to application of this provision or that it would impact the project in any way.

---

<sup>150</sup> Ex. 24B, Art. 18, § 4, subd. 1.

<sup>151</sup> Ex. 24B, Art. 18, § 2, subds. 18 and 21.

<sup>152</sup> Proposed Site Permit § 4.10.

#### **XIV. Setbacks for Bluffs.**

137. The County ordinance provides for a setback for commercial WECS of 1,350 feet from the top of bluffs over the Mississippi and Cannon Rivers and 500 feet from the top of other bluffs.<sup>153</sup>

138. The Commission has no setback standard for bluffs and has not addressed setbacks from bluffs in site permits, as bluffs have not been a factor in previous LWECS site permit dockets.<sup>154</sup>

139. The project area does not include any bluffs, and the Applicant has not indicated that this ordinance provision would impact the project in any way.

140. Although some type of setback for bluffs would be reasonable if there were bluffs in the project area, there appears to be no reason to apply this ordinance provision to the project.

#### **XV. Discontinuation and Decommissioning.**

141. Section 5, subdivision 12 B of the County ordinance requires that WECS shall have a decommissioning plan outlining the anticipated means and cost of removal at the end of the serviceable life or upon becoming a discontinued use. Subdivisions 12 C through 12 E of the County ordinance require an applicant to fund decommissioning with a cash escrow or irrevocable letter of credit in an amount equal to 125% of the cost estimate prepared by a competent party to ensure that decommissioning is completed as required by the ordinance. The ordinance does not specify when the cash or irrevocable letter of credit is to be provided to the County, who would hold the cash or letter of credit, how any cash would be invested, or how the County would obtain access to the funds if that became necessary.

142. The Commission's rule, Minn. R. 7854.0500, subp. 13, requires applicants to include information regarding decommissioning of the project and restoring the site, including a description of the anticipated life of the project; the estimated decommissioning costs in current dollars; the method and schedule for updating the costs of decommissioning and restoration; the method of ensuring that funds will be available for decommissioning and restoration; and the anticipated manner in which the project will be decommissioned and the site restored. The Commission's rule does not require a cash escrow or irrevocable letter of credit.

143. The Applicant has proposed that the cost estimate and funding be provided in year 15, which is approximately halfway through the project's

---

<sup>153</sup> Ex. 24B, Art. 19, § 4, subd. 1.

<sup>154</sup> OES Comments (Dec. 20, 2010), Attachment 1 at 6.

expected useful life of 25 to 30 years.<sup>155</sup> A requirement to fund the decommissioning cost in year 1 versus year 15 would add approximately \$1.5 million to the cost of the project.<sup>156</sup>

144. The ordinance is ambiguous in that it does not describe what is to be done with the cash or irrevocable letter of credit, who would hold the cash or how it would be invested, when it was to be given to the County, or how the County would obtain access to the funds. The Commission's rule requires more specific information about the development of the cost and the schedule for updating it. A requirement to fund decommissioning cost at the beginning of the project is not unreasonable for a project of this magnitude; however, the ambiguities in the ordinance would make it difficult to apply in its current form. For these reasons, there would be good cause not to apply this ordinance provision.

## **XVI. Stray Voltage Testing.**

145. Section 6, subdivisions 1 through 3 of the County ordinance require that a commercial WECS shall offer to perform at least two pre-construction stray voltage tests at all registered feedlots within the proposed project boundary and within a one-mile radius beyond the proposed project boundary. The results of any test are to be provided to property owners, the MPUC, local utilities, and the County. If a registered feedlot owner within the project boundary subsequently has a stray voltage test performed, and it is found that the cause of the stray voltage is attributed to the commercial WECS project, the project owners are required to pay for all costs associated with the testing and correcting of the problem.

146. This issue was of particular concern to one member of the County's Planning Advisory Commission.<sup>157</sup> The County included the stray voltage provisions in the ordinance because:

Whether or not this is a conclusively documented phenomenon, we felt a good baseline should [be] established by requiring pre-construction analysis to aid in evaluating the validity of potential future claims and prevent unnecessary conflict.<sup>158</sup>

147. The Commission has not previously included any requirements pertaining to stray voltage in site permits for wind farms because there is no scientific evidence that wind farms cause stray voltage.<sup>159</sup>

---

<sup>155</sup> Ex. 2, Robertson Direct at 10.

<sup>156</sup> Ex. 2, Robertson Direct at 11.

<sup>157</sup> Tr. 3B:10 (Wozniak).

<sup>158</sup> Ex. 24, Hanni Rebuttal at 2.

<sup>159</sup> OES Comments (Dec. 20, 2010), Attachment 1 at 6.

148. “Stray voltage” is the term used to refer to neutral-to-earth voltage that appears on grounded surfaces in buildings, barns, and other structures. It is generally caused by electrical problems in the wiring on a farm or the interconnection between a farm and the local utility distribution system. It is a condition that may exist between the neutral wire of a service entrance and grounded objects in buildings. At a farm served by single-phase electrical service, the grounded conductors are connected together at the service point (the point where the farm’s grounding system is connected to the utility’s grounding system). As electrical load at the farm increases, the return current to the substation increases, and, depending on the resistance of the ground, small voltages may be measured between a grounding conductor in a barn and an isolated ground rod. If an animal makes contact with metal that is connected to a ground conductor, a small current may flow through the animal from the ground to the piece of metal.<sup>160</sup>

149. Stray voltage is not associated with transmission lines. Wind projects have their own substations and transformers, and the collection system functions as a separately derived system. In addition, wind projects do not generate ground or neutral currents because of the type of transformer used at each turbine. Under normal operation, there is no intentional current in the ground wire. All current flows in the insulated underground conductors that connect the generators to the substation, which is connected to the transmission grid through dedicated 69 kV lines.<sup>161</sup>

150. Although an electrical fault could send current into the ground wire of a wind project for a few tenths of a second, until it is cleared,<sup>162</sup> there is no evidence that current would flow between grounding conductors in the manner required to create stray voltage.

151. There is no evidence that any wind farm operation has ever caused stray voltage problems of any sort.<sup>163</sup> No reports of stray voltage have been associated with any of Minnesota’s existing wind farms.<sup>164</sup>

152. There are approximately 150 feedlots within the project area and within one mile of the permit boundary.<sup>165</sup>

153. The requirement to conduct two pre-construction stray voltage tests could result in a delay of seven months and would add approximately \$1.2 million to the cost of the project.<sup>166</sup>

---

<sup>160</sup> Ex. 4, Malamen Direct at 4; Ex. 24A at 2591-94.

<sup>161</sup> Ex. 4, Malamen Direct at 5-6; OES Comments (Dec. 20, 2010), Attachment 3 at 3.

<sup>162</sup> Tr. 1:209-12 (Malamen).

<sup>163</sup> Ex. 4, Malamen Direct at 6-7.

<sup>164</sup> OES Comments (Dec. 20, 2010), Attachment 3 at 3.

<sup>165</sup> Ex. 4, Malamen Direct at 8.

<sup>166</sup> Ex. 2, Robertson Direct at 10.

154. The Applicant agreed to do pre- and post-construction stray voltage testing for three to five landowners who are participants in the project.<sup>167</sup>

155. In the absence of any evidence that stray voltage is associated with wind farm operations, there is good cause not to apply these ordinance provisions to the project.

## **XVI. Miscellaneous Sections.**

156. In **section 3, subdivision 6**, the County ordinance requires a commercial WECS to “provide proof of liability insurance covering the towers/project covering the lifespan of the project from the initial construction to final decommissioning.”<sup>168</sup>

157. The Applicant does not object to this requirement, contending that the Power Purchase Agreements approved by the Commission and the Development Agreement negotiated with the County contain similar provisions that require the Applicant to obtain insurance and set certain limits.<sup>169</sup>

158. The Commission’s general permit standards do not explicitly require liability insurance, but liability insurance is a requirement of the Power Purchase Agreements (the approval of which is a condition of the site permit). The ordinance could be applied without conflicting with any of the Commission’s general permit standards.

159. In **section 5, subdivision 6**, the County’s ordinance requires a commercial WECS to adhere to, but not exceed, FAA permits and regulations. It further provides that red strobe lights are preferred for night-time illumination to reduce impacts on migrating birds, and that red pulsating incandescent lights should be avoided.

160. The Commission’s general wind permit standards provide that no turbines, towers or associated facilities shall be located so as to create an obstruction to navigable airspace of public and private airports in Minnesota or adjacent states or provinces. The required setbacks or other limitations must be determined in accordance with the requirements of the Minnesota Department of Transportation Division of Aviation and the Federal Aviation Administration (FAA). With regard to turbine lighting, towers shall be marked as required by the FAA and there shall be no lights on the towers other than what is required by the FAA.<sup>170</sup>

---

<sup>167</sup> Tr. 1:185-86 (Burdick).

<sup>168</sup> Ex. 24B, Art. 18, § 3, subd. 6.

<sup>169</sup> Ex. 2, Robertson Direct at 11.

<sup>170</sup> Ex. 21 Attachment A at 9, 13.

161. It is unclear whether the County ordinance requires something different than the FAA requires in terms of lighting the towers, but it appears that the ordinance is generally consistent with the Commission's permit standards and is not more stringent. The FAA has issued a Determination of No Hazard for all 50 turbines in the current layout.<sup>171</sup> The ordinance could likely be applied without conflicting with the general wind permit standards.

162. In **section 5, subdivision 8**, the County's ordinance requires that all feeder lines equal to or less than 34.5 kV, installed as part of a WECS, shall be buried where reasonably feasible.

163. The Commission's general wind permit standards provide that feeder lines measuring 34.5 kV may be placed overhead or underground within public rights-of-way or on private land adjacent to public rights-of-way if a public right-of-way exists, except as necessary to avoid or minimize human, agricultural, or environmental impacts. Feeder lines may be placed on public rights-of-way only if approval or the required permits have been obtained from the responsible government unit. In all cases, the permittee is required to avoid placement of feeder lines in locations that may interfere with agricultural operations.<sup>172</sup>

164. The Applicant does not object to application of this ordinance provision, because it plans to bury all communication and feeder lines when reasonably feasible.<sup>173</sup>

165. The Commission's approach here is similar to that in negotiating setbacks to private rights-of-way—the owner of the right of way controls the decision whether the feeder line is to be overhead or underground. The proposed site permit provides that feeder lines may be overhead or underground, and that locations “shall be negotiated with the affected landowner(s).”

166. It is hard to say that the ordinance is “more stringent” than the Commission's general wind permit standard, because the ordinance requires “burial where reasonably feasible” and the Commission's standard requires the Applicant to do whatever the landowner wants to be done. These standards are virtually identical. It would not be necessary to apply the ordinance to achieve the same result.

167. **Section 5, subdivision 10**, of the County's ordinance requires a commercial WECS to provide a cash escrow or irrevocable letter of credit in an amount equal to 125% of the cost to repair anticipated damages to public infrastructure, including public roads and drainage systems as determined by the road authority. The funds would be held until the County issues a written release stating that the applicant has returned all routes to pre-construction condition.

---

<sup>171</sup> Ex. 3, Burdick Direct at 23.

<sup>172</sup> Ex. 21, Attachment A at 10.

<sup>173</sup> Ex. 3, Burdick Direct at 23.

168. The Commission's general wind permit standards require an applicant to "make satisfactory arrangements" for road use, access road intersections, maintenance and repair of damages, with the governmental jurisdiction having authority over each road. The permittee is to notify the permitting authority of such arrangements upon request.<sup>174</sup>

169. The Applicant has not objected to this provision of the ordinance. Again, there appears to be no conflict between the ordinance and the Commission's standard. The ordinance provision could be applied without conflicting with the Commission's general permit standards.

170. **Section 7, subdivisions 1 and 2**, require the applicant to provide an acoustic study that demonstrates the project will be compliant with State of Minnesota Noise Standards. The study shall include the estimated dB(A) levels at all receptors within one mile of the nearest turbine within a project area and shall include accumulated sound within the project.

171. The Commission's general wind permit standards require compliance with Minnesota Noise Standards at all residential receivers. There appears to be no conflict between the ordinance and the Commission's standards. The Applicant provided an acoustic study that demonstrates the project will comply with State of Minnesota Noise standards.

172. The definitions section of the ordinance contains a definition of a "Qualified Independent Acoustical Consultant" as a person with full membership in the Institute of Noise Control Engineers/INCE, or other demonstrated acoustical engineering certification. The Independent Qualified Acoustical Consultant can have no financial or other connection to a WECS developer or related company.<sup>175</sup>

173. It does not appear that the term Qualified Independent Acoustical Consultant is used elsewhere in the ordinance, so it is unclear why this term is defined. If the Commission were to apply the ordinance, this reference should be excluded because of its ambiguity.

174. In **section 9, subdivision 5**, the ordinance requires the applicant to "minimize or mitigate" interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any WECS. In addition, it requires the applicant to notify all communication tower operators within two miles of the proposed WECS, and it further provides that no WECS shall be constructed so as to interfere with County or Minnesota Department of Transportation microwave transmissions.

---

<sup>174</sup> Ex. 21, Attachment A at 11.

<sup>175</sup> Ex. 24B, Art. 18, § 2, subd. 26.

175. The Commission's general wind permit standards for electromagnetic interference require the permittee to submit a plan for conducting an assessment of television signal reception and microwave signal patterns in the project area. The assessment shall be designed to provide data that can be used to determine whether turbines and associated facilities are the cause of any disruption or interference that may occur after the turbines are placed in operation. The permittee "shall be responsible for alleviating any disruption or interference" caused by the turbines or any associated facilities.<sup>176</sup>

176. Because the Commission's standards regarding electromagnetic interference are more stringent than those contained in the ordinance, there would be good cause not to apply this ordinance provision.

### **XVII. Motion to Strike.**

177. On April 6, 2011, the Applicant moved to strike the brief filed by the Coalition for Sensible Siting on the basis that it misstates facts, contains assertions of fact that are unsupported by the record, and was not timely filed.

178. In response to the motion, the Coalition for Sensible Siting submitted a corrected post-hearing memorandum on April 8, 2011, indicating that the inaccuracies in the first brief were due to its inability to pay for a transcript and that the late filing (by approximately four hours) resulted in no prejudice to any party. Goodhue Wind Truth also filed a letter supporting the receipt of the corrected memorandum.

179. The filing was late, but it caused no prejudice to the Applicant. Accordingly, the motion to strike is granted in part and denied in part as follows: The post-hearing memorandum filed by the Coalition for Sensible Siting on April 1, 2011, is struck from the record; and the corrected post-hearing memorandum filed by the Coalition for Sensible Siting on April 8, 2011, is deemed to be timely received.

Based on the above Findings of Fact and Conclusions, the Administrative Law Judge makes the following:

---

<sup>176</sup> Ex. 21, Attachment A at 12.

## RECOMMENDATIONS

The Administrative Law Judge recommends that the Commission take action in accordance with the above Findings of Fact and Conclusions.

Dated: April 29, 2011

s/Kathleen D. Sheehy  
\_\_\_\_\_  
KATHLEEN D. SHEEHY  
Administrative Law Judge