

STATE OF MARYLAND  
PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF \*  
DAN'S MOUNTAIN WIND FORCE, LLC FOR \*  
A CERTIFICATE OF PUBLIC CONVENIENCE \*  
AND NECESSITY TO CONSTRUCT A 59.5 \*  
MW WIND ENERGY GENERATING FACILITY \*  
IN ALLEGANY COUNTY, MARYLAND \*

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BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF MARYLAND

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CASE NO. 9413

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PROPOSED ORDER OF PUBLIC UTILITY LAW JUDGE

Terry J. Romine  
Chief Public Utility Law Judge

Issued: January 25, 2017

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**APPEARANCES:**

F. William DuBois, Esquire, on behalf of Dan's Mountain Wind Force, LLC.

K. Darlene Park, *pro se*.

William R. Park, Sr., *pro se*.

Erin O. Stark, *pro se*.

Andrea Baker, *pro se*.

William M. Rudd, Esquire; Charles D. MacLeod, Esquire; and Michael V. Forlini, Esquire, on behalf of the Board of County Commissioners of Allegany County, Maryland.

Joyce R. Lombardi, Esquire, on behalf of the Maryland Office of People's Counsel.

Sondra S. McLemore, Esquire, on behalf of the Department of Natural Resources, Power Plant Research Program.

Kenneth M. Albert, Esquire, on behalf of the Technical Staff of the Maryland Public Service Commission.

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I. PROCEDURAL HISTORY

On January 14, 2016, Dan's Mountain Wind Force, LLC ("Applicant" or "Company") filed an application for a Certificate of Public Convenience and Necessity ("CPCN") to construct a 59.5 megawatt ("MW") wind energy generating facility ("Wind Project" or "Project") in Allegany County, Maryland ("Application").<sup>1</sup> Accompanying the Application was the direct testimony of David Friend, Chief Executive Officer of Laurel Renewable Partners, LLC as well as a Member Manager of Dan's Mountain Wind Force, LLC,<sup>2</sup> the direct testimony of Allison Haraminac, an Environmental Scientist with Pinyon Environmental, Inc.,<sup>3</sup> and the Environmental Review Document<sup>4</sup> for which Ms. Haraminac was responsible for developing in support of the Application. In the Application, the Company requested the Maryland Public Service Commission ("Commission") waive the two-year notice requirement ("Two-Year Waiver") found in Public Utilities Article, *Annotated Code of Maryland* ("PUA"), § 7-208, governing applications for CPCNs for the construction of generating stations and associated transmission lines in excess of 69,000 volts ("69 kV").

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<sup>1</sup> Appl. Exhibit ("Ex.") 11.

<sup>2</sup> Appl. Ex. 7 ("Friend Direct").

<sup>3</sup> Appl. Ex. 12 ("Haraminac Direct").

<sup>4</sup> Appl. Ex. 13 ("Appl. ERD").

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At the pre-hearing conference, held on March 3, 2016, the petitions to intervene filed by Allegany Neighbors & Citizens for Home Owners Rights Limited ("ANCHOR"), a not-for-profit citizen's organization, four individual residents of Allegany County (individually "pro se party" and collectively, "pro se parties"), and the Board of County Commissioners of Alleghany County ("County") were considered. Over the objection of the Applicant, the petitions of the pro se parties were granted and the petition of ANCHOR was granted, with the condition that to participate in the proceedings as a party, it would be required to be represented by an attorney authorized to practice in Maryland. The County and the pro se parties objected to a grant of the Two-Year Waiver; consequently, a pleading schedule was set for all the parties to submit testimony or comments in opposition or support of the request. Finally, a procedural schedule was adopted for considering the Application.

On April 7, 2016, the County filed a Motion to Dismiss or, Alternatively, Stay Consideration of the Application ("Motion"). After receiving responses to the Motion and hearing oral argument, the Motion was conditionally denied by a Ruling issued June 14, 2016.<sup>5</sup> On June 24, 2016, the Applicant met the condition by confirming that it would not seek a further extension

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<sup>5</sup> Public Utility Law Judge's Ruling on Motion to Dismiss (Docket Item No. 33).

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of the exemption from the CPCN requirement granted to it by the Commission in Case No. 9164.

On April 8, 2016, the Applicant submitted the Direct Testimony on the Two-Year Waiver of David K. Friend.<sup>6</sup> On April 22, 2016, the Applicant submitted the Supplemental Direct Testimony of David K. Friend.<sup>7</sup>

On August 8, 2016, the following direct testimony was filed by the identified party:

- Technical Staff ("Staff") of the Commission filed the Direct Testimony of DeAndre T. Wilson, an Engineer in the Commission's Engineering Division.<sup>8</sup>
- Department of Natural Resources ("DNR"), Power Plant Research Program ("PPRP"):
  - o Direct Testimony of Susan T. Gray, Deputy Director, PPRP;<sup>9</sup> who sponsored the Secretarial Letter and Reviewing State Agencies' Initial Recommended Licensing Conditions<sup>10</sup> and PPRP's draft Environmental Review of the Proposed Dan's Mountain Wind Force Project;<sup>11</sup>
  - o Direct Testimony of John K. (Ken) Hasenei, a Major and the Assistant Chief of the Support Services Bureau for the Maryland Department of State Police, the Chief Information Officer and Commander of the Technology and Information Management Command as well as serving as the State's

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<sup>6</sup> Appl. Ex. 8 ("Friend Two-Year Waiver Testimony").

<sup>7</sup> Appl. Ex. 9 ("Friend Suppl. Direct").

<sup>8</sup> Staff Ex. 1 ("Wilson Direct").

<sup>9</sup> PPRP Ex. 1 ("Gray Direct").

<sup>10</sup> PPRP Ex. 4 ("Initial Licensing Conditions").

<sup>11</sup> PPRP Ex. 3 ("PPRP ERD").

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Interoperability Coordinator, the Director of the Statewide Interoperability office and the Program Manager of Maryland FiRST, which is the Statewide Interoperable Radio Project;<sup>12</sup>

- o Direct Testimony of Dr. Peter D. Hall, President of Metametrics, Inc. and a consulting economist who specializes in regional economics and socioeconomic impact assessments;<sup>13</sup>
  - o Direct Testimony of Dan Feller, the Western Region Ecologist for the Maryland Department of Natural Resources Wildlife and Heritage Service ("WHS"), Natural Heritage Program;<sup>14</sup> and
  - o Direct Testimony of Diane Mountain, Senior project Manager at Environmental Resources Management, Inc. and a registered Professional Engineer in Maryland.<sup>15</sup>
- Erin O. Stark ("Stark"):
    - o Direct Testimony and Exhibits of Erin O. Stark;<sup>16</sup>
    - o Direct Testimony of Eileen E. Stoger (in support of all four of the Pro Se Parties);<sup>17</sup>
    - o Direct Testimony of Wayne C. Spiggle, MD (in support of all four of the Pro Se Parties);<sup>18</sup>
    - o Direct Testimony of Brian J. Hasslinger, M.D., a private practitioner in the Ear, Nose, Throat and Allergy field (in support of all four of the Pro Se Parties);<sup>19</sup>

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<sup>12</sup> PPRP Ex. 6 ("Hasenel Direct").

<sup>13</sup> PPRP Ex. 7 ("Hall Direct").

<sup>14</sup> PPRP Ex. 9 ("Feller Direct").

<sup>15</sup> PPRP Ex. 11 ("Mountain Direct").

<sup>16</sup> Stark Ex. 11 ("Stark Direct").

<sup>17</sup> Stark Ex. 8 ("Stoger Direct").

<sup>18</sup> Stark Ex. 1 ("Spiggle Direct").

<sup>19</sup> Stark Ex. 6 ("Hasslinger Direct").

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- Direct Testimony of Tammy McKenzie (in support of all four of the Pro Se Parties);<sup>20</sup>
- Direct and Rebuttal Testimony of Pamela Dodds, Ph.D., a Hydrogeological Consultant (in support of all four of the Pro Se Parties);<sup>21</sup> and
- Direct Testimony of Richard R. James, INCE, Principal Consultant of E-Coustic Solutions (in support of all four of the Pro Se Parties).<sup>22</sup>
- K. Darlene Park ("K.D. Park")
  - Direct Testimony of K. Darlene Park;<sup>23</sup>
  - Direct Testimony of Ann Bristow;<sup>24</sup>
  - Direct Testimony of Dale Elwood Allen;<sup>25</sup> and
  - Direct Testimony of Richard E. Kight.<sup>26</sup>
- William R. Park, Sr. ("W. Park")
  - Direct Testimony of William R. Park, Sr.;<sup>27</sup>
  - Direct Testimony of Kenneth Lee Garlitz (in support of all four of the Pro Se Parties);<sup>28</sup>
  - Direct Testimony of Tony Bequette (in support of all four of the Pro Se Parties);<sup>29</sup>

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<sup>20</sup> Stark Ex. 7 ("McKenzie Direct").

<sup>21</sup> Stark Ex. 4 ("Dodds Direct").

<sup>22</sup> Stark Ex. 9 ("James Direct").

<sup>23</sup> K.D. Park Ex. 5. ("K.D. Park Direct").

<sup>24</sup> K.D. Park Ex. 1 ("Bristow Direct").

<sup>25</sup> K.D. Park Ex. 2 ("Allen Direct").

<sup>26</sup> K.D. Park Ex. 3 ("Kight Direct").

<sup>27</sup> W. Park Ex. 4 ("W. Park Direct").

<sup>28</sup> W. Park Ex. 1 ("Garlitz Direct").

<sup>29</sup> W. Park Ex. 2 ("Bequette Direct").

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o Direct Testimony of Katie Kimmel-Dolchan, RN (in support of all four of the Pro Se Parties).<sup>30</sup>

- Andrea Baker ("Baker") filed her direct testimony.<sup>31</sup>

On August 10, 2016, an evening hearing for public comment was held at Allegany College of Maryland, Cumberland, Maryland. Commissioner Valentine, a member of the Allegany County Board of Commissioners, sat at the hearing with the Chief Public Utility Law Judge. Approximately 30 persons commented at the hearing; some in opposition and some in support.

On August 25, 2016, another evening hearing for public comment was held at Allegany College of Maryland, Cumberland, Maryland. None of the County Commissioners sat with the Chief Public Utility Law Judge at this hearing. Approximately 44 persons commented at the hearing; some in opposition and some in support.

During the pendency of the matter, the Commission also received approximately 600 written comments; the majority opposing the grant of a CPCN to the Applicant.<sup>32</sup>

On August 29, 2016, the following parties submitted the identified rebuttal testimony:

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<sup>30</sup> W. Park Ex. 3 ("Kimmel-Dolchan Direct").

<sup>31</sup> Baker Ex. 1 ("Baker Direct").

<sup>32</sup> Over 350 of the written comments were postcards each in the same format and same text opposing the CPCN, pre-addressed to the Commission's Executive Secretary, and designed for an individual to fill-in the blanks to list his/her name and address.

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- Applicant
  - Rebuttal Testimony of David K. Friend;<sup>33</sup>
  - Rebuttal Testimony of Sean D. Davis, Principal Landscape Architect/Planner with Morris & Ritchie Associates, Inc.;<sup>34</sup>
  - Rebuttal Testimony of Mark W. Eisner, P.G., President and Principal Hydrogeologist of Advanced Land and Water, Inc.;<sup>35</sup>
  - Rebuttal Testimony of Peter H. Guldberg, Senior Consultant of Tech Environmental;<sup>36</sup>
  - Rebuttal Testimony of A. Fletcher Mangum, Ph.D., President of Mangum Economics, LLC;<sup>37</sup> and
  - Rebuttal Testimony of Robert J. McCunney, MD, MH, MS, a research scientist at Massachusetts Institute of Technology Department of Biological Engineering and a staff physician in occupational/environmental medicine at Brigham and Women's Hospital, Boston.<sup>38</sup>
- PPRP:
  - Rebuttal Testimony of Dr. Peter D. Hall;<sup>39</sup>
  - Rebuttal Testimony of Diane Mountain;<sup>40</sup> and
  - Rebuttal Testimony of Robert W. Keating, a geologist with Environmental Resources Management, Inc.<sup>41</sup>

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<sup>33</sup> Appl. Ex. 10 ("Friend Rebuttal").

<sup>34</sup> Appl. Ex. 5 ("Davis Rebuttal").

<sup>35</sup> Appl. Ex. 6 ("Eisner Rebuttal").

<sup>36</sup> Appl. Ex. 26 ("Guldberg Rebuttal").

<sup>37</sup> Appl. Ex. 14 ("Mangum Rebuttal").

<sup>38</sup> Appl. Ex. 22 ("McCunney Rebuttal").

<sup>39</sup> PPRP Ex. 8 ("Hall Rebuttal").

<sup>40</sup> PPRP 12 ("Mountain Rebuttal").

<sup>41</sup> PPRP Ex. 13 ("Keating Rebuttal").

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On September 12, 2016, the following parties submitted the identified surrebuttal testimony:

- The County filed the Surrebuttal Testimony of Wesley W. McKee, Esquire, a private practice attorney employed as counsel for the Allegany County Board of Zoning Appeals and the Allegany County Planning and Zoning Commission.<sup>42</sup>
- PPRP:
  - Surrebuttal Testimony of Susan T. Gray;<sup>43</sup> and
  - Surrebuttal Testimony of Daniel Feller.<sup>44</sup>
- Stark:
  - Surrebuttal Testimony of Erin O. Stark;<sup>45</sup>
  - Surrebuttal Testimony of Wayne C. Spiggle, MD;<sup>46</sup>
  - Surrebuttal Testimony of Richard R. James, INCE;<sup>47</sup> and
  - Surrebuttal Testimony of Pamela Dodds, Ph.D.<sup>48</sup>
- Staff filed the Surrebuttal Testimony of DeAndre T. Wilson.<sup>49</sup>

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<sup>42</sup> County Ex. 1 ("McKee Surrebuttal").

<sup>43</sup> PPRP Ex. 2 ("Gray Surrebuttal").

<sup>44</sup> PPRP Ex. 10 ("Feller Surrebuttal").

<sup>45</sup> Stark Ex. 12 ("Stark Surrebuttal").

<sup>46</sup> Stark Ex. 2 ("Stark Surrebuttal").

<sup>47</sup> Stark Ex. 10 ("James Surrebuttal").

<sup>48</sup> Stark Ex. 5 ("Dodds Surrebuttal").

<sup>49</sup> Staff Ex. 2 ("Wilson Surrebuttal").

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On September 14, 2016, the County filed a Memorandum to memorialize its recommendations in the proceeding for consideration pursuant to PUA § 7-207(e)(1).<sup>50</sup>

On September 15 and September 16, 2016, an evidentiary hearing was held at Allegany College of Maryland, Cumberland, Maryland. At the evidentiary hearing, on September 16, 2016, the Surrebuttal Testimony of K Darlene Park,<sup>51</sup> the Surrebuttal Testimony of William Park,<sup>52</sup> and Joint Surrebuttal Testimony of K. Darlene and William Park,<sup>53</sup> which had been served on the parties on September 12, 2016, was accepted as late-filed testimony.

Initial briefs were filed by the Parties on October 26, 2016; reply briefs were filed by the Parties on November 16, 2016.

**II. BACKGROUND**

The Applicant is asking for a CPCN to construct the Wind Project on Dan's Mountain on privately owned, leased land on the Mountain. The Applicant currently intends to construct seventeen wind turbines within a 2800 acre site, with fourteen turbines at the height to nacelle of 94 meters and three turbines at height to nacelle of 80 meters, with no turbine exceeding approximately 500 feet in height to the tip of the blade.<sup>54</sup> In Case No. 9164,

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<sup>50</sup> Transcript at 6-7.

<sup>51</sup> K.D. Park Ex. 6 ("K.D. Park Surrebuttal").

<sup>52</sup> W. Park Ex. 5 (W. Park Surrebuttal").

<sup>53</sup> K.D. Park Ex. 7 ("Park Joint Surrebuttal").

<sup>54</sup> Appl. ERD at 0029.

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pursuant to PUA § 7-207.1, the Applicant applied for and was granted an exemption from the CPCN requirement to construct a wind facility on Dan's Mountain.<sup>55</sup> In the Letter Order granting the exemption, the Commission explicitly advised the Applicant:

[T]he grant by the Commission of an exemption from the CPCN requirement does not limit the authority of any State or local authority and the Company must obtain all authorizations or permissions from these authorities applicable to constructing or operating the turbines.

Accordingly, prior to its filing of the Application, the Applicant sought to obtain the necessary approval of the County to construct its Wind Project.

After the grant of the CPCN Exemption and prior to the Company filing an application to obtain any necessary land use approvals, the County adopted County Code § 360-92 ("Wind Energy Commercial System ("WECS") Ordinance"), which prescribed the requirements for obtaining approval for an industrial wind energy facility located within the County. The Applicant applied along with the so-called Participating Property Owners for variances of the County's WECS Ordinance setback and distance separation requirements; the Applicant also applied for a special exception to the County's land use ordinance. The County's Board of Zoning

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<sup>55</sup> See *In the Matter of Dan's Mountain Wind Force, LLC for an Exemption of the Certificate of Public Convenience and Necessity to Construct a 69.6 MW Wind Generation Facility in Western Allegany County, Maryland*, Case No. 9146, Letter Order dated March 12, 2009 (errata dated March 16, 2009).

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Appeals denied all of the variance applications as well as the Applicant's special exception application. This denial precipitated the Applicant's filing of its Application, including its request that the Commission specifically preempt the County's land use ordinances governing industrial wind farms.

The County, the *pro se* parties and OPC each recommend denial of the CPCN; each challenges the Applicant's assertion that the WECS Ordinance is preempted by the Commission's CPCN authority. Staff and PPRP each support the grant of the CPCN, subject to certain licensing conditions. Staff agrees with the Applicant that the Commission's CPCN authority preempts the County's WECS Ordinance; PPRP takes no position on the preemption issue.

Alternatively, the County argues that, even if its WECS Ordinance is preempted, it does not prevent the Commission from granting the CPCN subject to compliance with all the County's land use ordinances. If the WECS Ordinance is preempted, the *pro se* parties argue for greater protections than provided under the WECS Ordinance to ensure that the value of each of their properties is maintained, any potential adverse health impacts that may occur due to the nearness of a turbine to the property are eliminated, any adverse impact to each of their potable water supply are avoided, and the view sheds of nearby residential properties are protected. The *pro se* parties also challenge the Applicant's assertion that aviation safety will not be adversely impacted by the Wind Project.

PPRP, based on the concerns that have been expressed by the *pro se* parties as well as a number of residents at the hearings

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for public comment, has recommended a number of licensing conditions to address the issues raised by the pro se parties. PPRP conducted its environmental and socioeconomic analyses, and recommends a licensing condition to ensure that the Wind Project is constructed and operated to comply with certain federal, State, and local laws.

**III. PREEMPTION OF COUNTY'S LAND USE CODE § 360-92**

**A. Parties' Position**

**1. Applicant**

The Applicant argues that the land use authority granted by the General Assembly to the County, pursuant to *Md. Code Ann.*, Land Use § 4-101(a)(1), is expressly limited in that "[t]he powers granted to a local jurisdiction under this subtitle do not ... (4) preempt or supersede the regulatory authority of any unit of the State under any public general law."<sup>56</sup> Consequently, according to the Applicant, because the General Assembly has granted the regulatory authority to the Commission to site and approve construction of electric generating stations, pursuant to Public Utilities Article, §§ 7-207 and 7-208, the County's land use enactments cannot "preempt or supersede" the Commission's regulatory authority.<sup>57</sup> The Applicant asserts that the legislation

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<sup>56</sup> Appl. Init. Brief at 30, citing § 4-104(a).

<sup>57</sup> *Id.*

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authorizing Home Rule has "nearly identical legislative text," and therefore the County's Home Rule authority has the same limitations. The Applicant also notes that the County's land use requirements include the limitation that the requirements do not apply to "[u]ses subject to explicit federal or state control."<sup>58</sup>

Additionally, the Applicant relies on the Court's ruling in *Howard County v. Potomac Electric Power Company*<sup>59</sup> to support its argument that the Commission's CPCN authority "preempt[s] by implication county zoning ordinances."<sup>60</sup> It argues that *Howard County* does not differentiate between transmission and generation and applies the same to both types of infrastructure.<sup>61</sup> The Applicant notes that, even after *Howard County* was decided, the General Assembly kept the siting decision for generating stations with the Commission, even though most other restructured states stripped CPCN authority from their state utility commissions.<sup>62</sup> It asserts "[t]he only reason the General Assembly would have left power siting authority with the Commission post-restructuring would be to ensure that a comprehensive, State-level review takes place, preempting local zoning."<sup>63</sup>

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<sup>58</sup> *Id.* at 31.

<sup>59</sup> 319 Md. 511, 573 A.2d 821 (1990) ("*Howard County*").

<sup>60</sup> *Id.* at 32.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.* at 34, fn 10.

<sup>63</sup> *Id.*



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The Applicant also notes the Maryland Department of Legislative Services' statement supporting Applicant's position on preemption: "[i]f a commercial wind-powered generating facility is granted a [CPCN] by the [PSC] the generating facility may be constructed without regard to local zoning rule, regulation, law or ordinances."<sup>64</sup> The Applicant further cites *Worton Creek Marina, LLC v Claggett*,<sup>65</sup> to support its position on the "fundamental doctrine of the law of State preemption of local law in Maryland."<sup>66</sup>

Further, the Applicant asserts that the County misunderstood the Commission's dicta decision in *Re: The Application of Potomac Edison Company on Behalf of PATH Allegheny Transmission Company, LLC ("Potomac Edison")*<sup>67</sup> because the decision referenced a substation, which does not in and of itself, require a CPCN or Commission approval to be constructed. The Applicant argues that the Commission's determination was "to clarify the preemptive effect of a CPCN extends to substation construction if that substation is 'integral' to the project for which a CPCN is required."<sup>68</sup>

Finally, the Applicant argues that its Project was sited and its layout is substantively consistent with the County's WECS Ordinance.

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<sup>64</sup> *Id.*, citing *Fiscal and Policy Note*, HB 116 (2011 session) at 1-2.

<sup>65</sup> 381 Md. 499, 513 (2004) quoting *Rossberg v. State*, 111 Md. 394, 416-17 (1909).

<sup>66</sup> *Id.* at 35.

<sup>67</sup> Order No. 82892, Case No. 9198.

<sup>68</sup> *Id.* at 36.



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**2. County**

In its initial brief, the County first argues that *Howard County* determination applies solely to transmission lines in excess of 69 kilovolts, and has no application to this matter which involves a generating station. The County asserts that the generating station in this matter may be differentiated from the transmission line at issue in *Howard County* in that the wind project is located only in Allegany County, is not integral to a transmission line, and is not needed to prevent electricity blackouts.

The County asserts that it is the State's policy to permit comprehensive zoning and land use laws implemented by the local governments. It also argues that the CPCN condition subjecting the Project to the County's zoning and land use requirements is consistent with Commission's decisions in other CPCN matters (citing *Potomac Edison*). Further, it claims that the Commission's recent decision in Case Nos. 9387 and 9392 to leave the issue of CPCN preemption over "local ordinances regarding land use, and the like" to "another day" demonstrates the Commission's acknowledgment that "its CPCN granting authority does not fully or automatically trump local zoning and land use; considering Howard Co. or otherwise."<sup>69</sup>

The County points to its comprehensive zoning and land use regulations to show that the Applicant's claim that the

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<sup>69</sup> County Init. Brief at 7.

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County's regulations were enacted to preclude a wind generating facility from being constructed in the County is not correct. It also asserts that its land use authority may be harmonized with the PPRP recommended licensing conditions.

**3. Pro Se Parties**

K. Darlene Park and William R. Park, Sr. argue that Code 60.92 was enacted by the County "to protect its citizen from the adverse impacts from the noise pollution, blade shadow flicker, and low frequency sound vibrations of the industrial wind turbines."<sup>70</sup> They assert that the County's ordinance should not be preempted in order to meet an "unrealistic renewable energy quota" enacted by the Maryland General Assembly. They noted that the Pennsylvania Supreme Court recently found that the Pennsylvania Public Utility Commission "had over extended their authority by claiming State preempt over counties' land use and zoning codes" for a private solar developer.<sup>71</sup>

Ms. Stark argues that health and welfare of the local citizens affected by a proposed generating facility is not a consideration that the Commission is required to undertake under PUA § 7-207(e) nor are any State health-related agencies required to be given notice of a CPCN application. She therefore asserts that the lack of this consideration within the PUA demonstrates

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<sup>70</sup> Parks Init. Brief at 4.

<sup>71</sup> *Id.* at 8, citing *Robinson Township v. Commonwealth of Pennsylvania*.

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that these considerations remain the domain of the local government and any zoning ordinances it has enacted to protect its citizenry. Consequently, she concludes that there is no preemption of the local land use ordinances contemplated by the General Assembly in enacting PUA § 7-207.

**4. OPC**

OPC argues that the Commission must give significant weight to the County's land use ordinance in making a decision in this matter. It asserts that the Court's ruling in *Howard County* was decided under circumstances that are substantially different than in this case. OPC notes that the County has considered and rejected the Applicant's proposal to build on Dan's Mountain, and OPC opposes the Applicant's attempt to avoid the decision of the County by the filing of its CPCN Application. It argues that, as the electric companies no longer own or operate generation, the need for electric generation is no longer determined by the Commission, but rather determined by private developers who derive a profit from the sale of the electricity in the PJM wholesale market. Thus, as there is adequate, efficient and reliable utility service in Maryland, the Commission should give significant consideration to Allegany County's recommendation in this matter.

**5. Staff's Position**

Relying on the Court's decision in *Howard County*, Staff supports the Applicant's position that the Commission's authority

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to site generating facilities in the State under the CPCN process implicitly preempts the County's land use ordinances applicable to industrial wind facilities. Staff noted that the Court in *Howard County* stated that PUA § 7-207 obligates the Commission to give due consideration to the recommendation of the local government, but the Commission is not required to adopt those recommendations. It cited a recent case, *Accokeek*,<sup>72</sup> in which the Court of Special Appeals reaffirmed that the Commission need not adopt the local government's recommendations after giving due consideration to it during a CPCN proceeding. Staff also argues that if a county is able to prevent the construction of a generating facility that may protect local concerns by the enactment of zoning laws, the Commission's obligation to consider the State-wide impact of the public convenience and necessity would be undermined.

**B. Discussion and Findings**

The General Assembly granted the Commission the authority to approve the construction of a generating station within Maryland with the mandate that the Commission take "due consideration" of local government concerns and recommendations as well as the environmental and socioeconomic impacts of the construction of the generating station on the State, the areas

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<sup>72</sup> *Accokeek, Mattawoman, Piscataway Creeks Communities Council, Inc. v. Public Service Commission*, 227 Md. App. 265, 133 A.3d 1228, cert. granted sub nom. *Accokeek, Mattawoman, Piscataway Creeks Communities Council v. Public Service Commission*, 448 Md. 724, 141 A.3d 135 (2016).

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surrounding the location, and the local residents and businesses.<sup>73</sup> In reliance on the Court's decision in *Howard County*, both the Applicant and Staff conclude that the General Assembly has implicitly preempted the field of transmission and generation siting. The County disagrees with the Applicant's and Staff's argument because the *Howard County* centered on the siting of a transmission line, which ran through a number of jurisdictions, unlike the subject Wind Project, which is located solely within Allegany County. OPC also questions whether, under deregulation, the decision in *Howard County* remains valid as to generation facilities. The County also offers that the Commission, similar to its decision in Order No. 87835, may "simply find that the applicable provisions of § 360-92 of the Allegany Code are reasonable and justified to warrant inclusion as a CPCN condition without determining the preemption issue."<sup>74</sup>

I find that the General Assembly has granted to the Commission the sole authority to site a generating facility in Maryland and issue a CPCN after due consideration of the factors set forth in PUA § 7-207 and a finding of public convenience and necessity; thus, implicitly preempting the field. Even after deregulation, the General Assembly, did not remove the Commission's siting authority for generation facilities, even though it would have had constructive knowledge of the precedent established by the

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<sup>73</sup> See Md. Ann. Code, Publ. Utils. 7-207(e).

<sup>74</sup> County Reply Brief at 5.

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Court's decision in *Howard County*. In the Commission's recent decision, Order No. 87835, the Commission determined that the General Assembly's grant of "the broad power of 'due consideration' in NR 5-1603(f)" may preempt, but not nullify, the local ordinances enacted pursuant to the Forest Conservation Act.<sup>75</sup> Although the Commission did not render a declaratory ruling regarding the CPCN preemption on land use ordinances, "and the like," the Commission considered the Law Judge's finding that the "General Assembly's grant of the Commission's CPCN authority includes implied preemption of local laws in the entire field of siting and construction of electrical generation and transmission" as accurate.<sup>76</sup>

Moreover, the General Assembly ensured that the local government had the opportunity to present their views, including a discussions of its land use ordinances and the public policy behind the adoption of the applicable ordinances, to the Commission during the CPCN process, and mandated that the Commission give "due consideration" of the local government's recommendations. In obligating the Commission to give due consideration of the local government's recommendations, the General Assembly recognized that the local government has unique knowledge on how the proposed

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<sup>75</sup> *In the Matter of the Application of OneEnergy Blue Star Solar, LLC, for a Certificate of Public Convenience and Necessity to Construct a 6.0 MW Solar Photovoltaic Generating Facility in Kent County, Maryland*, Case No. 9387, and *In the Matter of the Application of OneEnergy Ibis Solar, LLC, for a Certificate of Public Convenience and Necessity to Construct a 6.0 MW Solar Photovoltaic Generating Facility in Somerset County, Maryland*, Case No. 9392, Slip Op. at 16.

<sup>76</sup> *Id.*



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project may impact the local communities, its residents, and its businesses and may identify the health, safety and welfare concerns or other concerns that it or its citizenry may have about the proposal. Further, PUA § 7-207 also requires that a public hearing for public comments be held and provides the opportunity for the county governing body to sit jointly with the Commission at such hearing. The statute therefore provides appropriate due process by which the local government, the residents and businesses may inform the Commission of local concerns and recommend the appropriate action on a CPCN application or necessary conditions upon which a CPCN may be granted to protect the health, safety and welfare of the local residents and businesses.

In reaching a "public convenience and necessity" determination, however, the Commission must address not only the interest of the local community and the impact of the generating facility on it, but also assess the State's interest and the benefits that may accrue to the public at large in siting a generating facility within the State. I therefore find that the General Assembly has structured the CPCN process to accord the necessary due process and ensure the Commission has the necessary evidence as to the local impact of a project in making its public interest determination in a CPCN process. Consequently, I find that the General Assembly has implicitly preempted the field of siting for generating stations for which an application for a CPCN has been submitted.



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Certainly, when the local government has enacted land use ordinances, the land use ordinances should be given significant weight in the Commission's decision. As the Commission determined, "local ... regulations may prove to be reasonable and justified to the point that they are adopted as a licensing condition by the Commission."<sup>77</sup> Consequently, for issues raised by the Parties that are addressed in the WECS Ordinance, I will give significant weight to those provisions and apply them appropriately if they are "reasonable and justified."

**IV. Applicable Law**

Pursuant to § 7-207 of the Public Utilities Article, the Commission must give due consideration to the following factors prior to taking action on an application for a CPCN:

(e)(1) the recommendation of the governing body of each county or municipal corporation in which any portion of the construction of the generating station or overhead transmission line is proposed to be located; and

(2) the effect of the generating station or overhead transmission line on:

(i) the stability and reliability of the electric system;

(ii) economics;

(iii) esthetics;

(iv) historic sites;

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<sup>77</sup> *Id.* at 16.

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(v) aviation safety as determined by the Maryland Aviation Administration and the administrator of the Federal Aviation Administration;

(vi) when applicable, air and water pollution; and

(vii) the availability of means for required timely disposal of wastes produced by any generating station.

**V. SECTION 7-207 CONSIDERATION FACTORS<sup>78</sup>**

**A. Consideration of the County's Recommendations**

The County has recommended, if the Commission determines that the County's land use ordinances are preempted, that the Commission condition any CPCN grant on full compliance with the County's land use ordinances, including the WECS Ordinance. Certain of the issues in dispute may be resolved by a discussion of the applicable WECS Ordinance and whether applying the specific provisions of the WECS Ordinance are reasonable or whether a modification should be made to it. In Subsection A, the issues that are discussed pursuant to the County's recommendations are: (1) the appropriate separation and set back distances; (2) the decommissioning bond; (3) licensing conditions for any electromagnetic interference to communication towers located on Dan's

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<sup>78</sup> I do not address or discuss matters in the record not challenged by the Parties and not a PUA § 7-207(e) factor that the Commission is required to give due consideration.



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Mountain (existing or planned) that may occur upon the installation and operation of the wind turbines; and (4) a licensing condition to require pre- and post-testing of certain residential potable water supplies and associated bond. As the County's WECS Ordinance provides for a variance or reduction of the prescribed set back and separation distances, I also weigh whether a distinction should be made between a participating property owner and a non-participating property owner in determining the appropriate minimum setback and separation distances.

Although the County did not advocate any specific noise level thresholds, one of the bases for the separation distances from residential structures and other structures is to mitigate the noise and vibration produced by the turbines. I therefore include in this section's analysis, a discussion and findings on the appropriate noise threshold levels required to mitigate potential adverse impacts on nearby residential structures. Although the issues of shadow flicker and visual impacts also may factor into separation distances, I conclude that the mitigation of those factors are not necessarily required to be mitigated by separation or setback distances. I therefore address those issues as "stand alone" considerations.

**1. Appropriate Setback - Separation Distances - Noise and Vibration Threshold Levels**

**a. Overview**

In the Report of the Planning & Zoning Commission of Allegany County (Jan. 2009) ("Planning Commission Report" or



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"January 9 Report"), the Planning Commission considered whether to ban outright any WECS in the County and determined that "an outright ban negatively impacts wind developers and the rights of private property owners" and found "that wind energy devices would be permitted, however, greater restrictions and enhanced protections were necessary to address some of the potential issues and concerns."<sup>79</sup> Further, the Planning Commission Report explained that "[a]fter significant discussion, the Planning Commission agreed that the minimum separation distances needed to be increased to aid in the mitigation of noise, vibration, and visual impact" with a different standard between domestic turbines, agricultural turbines, and industrial turbines.<sup>80</sup> Accordingly, the Planning Commission stated that its recommended distances between structures with more than 600 feet of occupiable space and a residential structure "attempted to minimize the negative impacts to nearby properties," while the separation distance to schools was "to promote a favorable learning environment and protect children."<sup>81</sup> In connection with the setback distances, the Planning Commission also recommended a "sliding scale that linked the structure's height with the setback requirement."<sup>82</sup>

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<sup>79</sup> Bench Ex. 1, January 9 Report at 3 (No page numbers appear in the Report. My use of page numbers is for convenience of the reader. Page 1 is the first page after the title page.)

<sup>80</sup> *Id.* at 5.

<sup>81</sup> *Id.* at 6.

<sup>82</sup> *Id.* at 10.

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County Code § 360-92, the WECS Ordinance, incorporated the Planning Commission's recommended separation distance requirements<sup>83</sup> and the recommended setback requirements.<sup>84</sup> The minimum separation distance between an industrial WECS and a residential structure is 2000 feet, a structure with 600 or more square feet of occupiable space not the property of the applicant is 1000 feet, and a school is 5000 feet. Under the WECS Ordinance, an applicant, with written authorization of a property owner within the prescribed separation area, may seek a variance of the prescribed minimum separation distance for structures not owned by the applicant or residential structures or of the prescribed minimum setback distance. The WECS Ordinance also permits the Board of Zoning Appeals, if it finds "that concerns regarding health, safety and welfare warrant additional separation, ... at its discretion," to increase prescribed separation distances by up to 50%," as well as increase prescribed setback distances by up to 50%.

According to the Applicant, other than the Participating Property Owners, it has prepared its facility layout to substantially meet the County's WECS Ordinance for all non-participating property owners. The pro se parties dispute the Applicant's assertion of "substantial compliance" with the WECS Ordinance because the County's Board of Zoning Appeals denied the

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<sup>83</sup> The separation distance is based on the distance to a structure or a habitat located on a property not owned by a WECS owner from a wind turbine

<sup>84</sup> The setback distance is based on the distance to the property boundaries in all directions



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variances necessary to allow the Applicant to construct a number of its wind turbines that are located too close to the Participating Owners' property lines and/or residential/occupiable structures. The *pro se* parties further argue that, if the variances for the Participating Parties are allowed based upon the preemption of the County's WECS Ordinance, the Commission must include a greater minimum setback and separation distance than enacted by the County to protect the *pro se* parties from potential health and safety impacts resulting from the noise and vibrations produced by the proposed wind turbines. Ms. Baker also argues that, as she home schools her children, her residence should be deemed a "school" for purposes of the separation distances.

I conclude that setback or separation distances related to non-participating owners' properties, including the *pro se* parties, are in compliance with the County's WECS Ordinance. I further note that the four wind turbines that appear closest to the *pro se* parties' properties are turbines for which no variance of either the setback or separation distance requirements were required under the WECS Ordinance.<sup>85</sup> Consequently, even if the setback distances and separation distances are not enforced for the Participating Property Owners, the *pro se* parties' properties (as well as the other non-participating properties) still retain the protections of the minimum separation and setback distances prescribed by the WECS Ordinance.

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<sup>85</sup> See K.D. Park Ex. 4; Appl. ERD at 1369.



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As to Ms. Baker's argument that her home should be deemed a "school" for purposes of applying the WECS Ordinances to non-participating properties, I conclude that the term "school" is generally defined as an institution, either private or public, which accepts eligible or qualified children and provides group instruction. A person's election to provide home instruction to his/her child rather than sending a child to a public or private school is not sufficient to turn the structure at which the child is given one-on-one instruction and which only children within the family are "eligible" for instruction to be deemed the equivalent of a "school." Consequently, I determine that the structure on Ms. Baker's property is a residential structure and not a "school" for purposes of the decisions made in this Proposed Order.

**b. Parties' Positions**

**(i) Company**

In Appendix H included in the Company's ERD, the Company presented two noise analyses: one dated September 2008 based on the Company's then proposed number and model of wind turbines, and the other revised January 2016, which conducted the noise study based on the updated number and proposed models of wind turbines ("Revised Study").<sup>86</sup> The Revised Study reflected the estimated

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<sup>86</sup> I do not consider the initial noise analysis to be relevant to my decision in this matter.



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sound levels produced by the wind turbines at 110 identified structures along the Project's property boundaries, using the Cadna/A acoustic model, in accordance with International Standard ISO 9613-2 and a set of conservative assumptions.<sup>87</sup> According to the Revised Study, "all property line sound levels comply with the Maryland State Noise Regulation, which limits the nighttime sound level to 55 dBA on the property line of a residential or vacant parcel."<sup>88</sup> It further determined that "all residence sound levels are at least 4 dBA below 55 dBA."<sup>89</sup> It also concluded that:

Whereas the property line is always closer to the nearest wind turbines than any potential residence on an abutting parcel, the property line sound levels are higher than those at the residences. Thus, compliance at the property line ensures compliance at all residences.<sup>90</sup>

Company witness Guldberg testified on the impact of the project on the acoustic environment. Mr. Guldberg presented a report entitled, "Compliance Sound Testing of Four Mile Ridge Wind Project, Garrett County, Maryland," which resulted from an evaluation conducted by Mr. Guldberg of acoustic impacts from operation of the Fourmile Project.<sup>91</sup> Mr. Guldberg testified that the highest sound level at a non-participating residence for the

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<sup>87</sup> Applicant ERD at 1354.

<sup>88</sup> Id.

<sup>89</sup> Id.

<sup>90</sup> Id. at 1361.

<sup>91</sup> Guldberg Rebuttal at 3, Appendix 1.



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Dan's Mountain Project is estimated to be 3 decibels less than at the Fourmile Project.<sup>92</sup> He described a 3 decibel reduction as representing "a halving of the sound energy received from the Dan's Mountain wind turbines by a non-participant compared to Fourmile."<sup>93</sup> Mr. Guldberg testified that each of the four properties studied at Fourmile Ridge were approximately 1400 feet from the nearest wind turbine(s).

Company witness McCunney addressed the claims regarding human health effects from infrasound associated with wind turbines. Dr. McCunney provided a background of sound and its components, including infrasonic and low-frequency range sound. He explained that infrasound "is very common in the natural and man-made environment and is not unique to wind turbine operations," and indicated that "health risks of infrasound are related to the intensity of the noise exposure as with other frequencies."<sup>94</sup> Dr. McCunney testified that, although some authors have claimed that "low-frequency noise, most notably within the infrasonic level, can adversely affect human health even when the sound level is below the average person's ability to detect them, there are no scientific studies that demonstrate adverse health effects from sub-audible infrasound at the levels encountered near homes in the vicinity of wind turbines."<sup>95</sup> Further, he stated that "[i]n

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<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

<sup>94</sup> McCunney Rebuttal at 6.

<sup>95</sup> *Id.* at 7.

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general, acousticians have reached consensus that infrasound from wind turbines is not a significant risk to human health."<sup>96</sup> For example, he noted a Texas study of infrasound related to wind turbines, in which "[t]he results indicated that infrasound is not audible to even the most sensitive people 305 meters (1,000) feet from the wind turbines."<sup>97</sup> Further, he commented that an "Australian study showed that even at distances of 200 meters, infrasound from wind turbines were insignificant in comparison to natural background sources."<sup>98</sup>

Dr. McCunney also described a 2014 critical review of scientific literature regarding wind turbines and health by Dr. McCunney and his co-authors, in which they cited over 160 references, assessed the peer-reviewed literature regarding evaluations of potential health effects among people living in the vicinity of wind turbines, and addressed the several questions regarding wind turbines and health.<sup>99</sup> He listed the overall conclusions of the critical review, including that "components of wind turbine sound, including infrasound and low-frequency sound, have not been shown to present unique health risks to people living near wind turbines."<sup>100</sup> Additionally, the critical review concluded, among other things, that "annoyance associated with

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<sup>96</sup> *Id.* at 8.

<sup>97</sup> *Id.* at 9.

<sup>98</sup> *Id.* at 11.

<sup>99</sup> *Id.* at 12.

<sup>100</sup> *Id.* at 14.



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living near wind turbines is a complex phenomenon related to personal factors, and noise from turbines plays a minor role in comparison with other factors in leading people to report annoyance in the context of wind turbines."<sup>101</sup>

He also noted that in a recent summary of results of a Health Canada Study, the study concluded, among other things that "Beyond annoyance, the current study does not support an association between exposure to wind turbine noise up to 46 dB and the evaluated health related end points."<sup>102</sup> He described additional studies that have been conducted including an assessment of the role of psychological factors associated with sleep disturbance among people living near wind turbines.<sup>103</sup> The Study reported that "[c]ontrary to expectations, changes in sleep variables were not associated with distance to WTs but 'instead strongly associated with subjective factors, such as attitude to WTs, visual impact and concern about property values.'"<sup>104</sup>

Dr. McCunney commented on the testimony of Drs. Hasslinger and Spiggle concerning their view of health implications from living near wind turbines. He stated that, based on his review of their testimony, their assertions are anecdotal and have not been presented in a systematic fashion. Dr. McCunney said that "a proper causality assessment for an individual includes a

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

<sup>102</sup> *Id.* at 15.

<sup>103</sup> *Id.* at 16.

<sup>104</sup> *Id.*

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thorough review of symptoms and past medical history with appropriate diagnostic studies. The determination of causality is an important exercise in health care, but it is customarily only undertaken after diagnosis and treatment."<sup>105</sup>

Applicant witness Davis opined that finding "uninhabited areas that size [one-mile radius] in Maryland where a wind project could be placed is probably impossible."<sup>106</sup>

The Applicant also has agreed to make the CPCN subject to PPRP's final Recommended Licensing Condition No. 27 and two additional licensing conditions: (1) an agreement to maintain a 24/7 telephone complaint line and email address which it will make public through the project website or media account; and (2) in the event the Applicant must demonstrate compliance with the noise standard or investigate noise complaints, the study shall be performed by a qualified, independent, third-party acoustician (who is not an employee of Dan's Mountain or its affiliates), with the choice mutually agreed to by PPRP and Dan's Mountain.

(ii) **PPRP**

Using WindFarm 4<sup>®</sup> RESoft Limited modeling software, PPRP estimated the sound levels that may be produced by the proposed turbine layout and evaluated the potential noise impacts.<sup>107</sup> As a

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<sup>105</sup> PPRP ERD at 21.

<sup>106</sup> *Id.* at 5.

<sup>107</sup> PPRP ERD at 56.



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result of its modeling, it determined that the wind turbines are expected to produce noise levels at or below 47 dBA at residences adjacent to the Wind Project, with noise level contours generated that show noise levels at property lines at or below 55 dBA. It noted that 47 dBA in a rural setting may still represent a noticeable increase over existing background noise levels.<sup>108</sup>

In his rebuttal testimony, Dr. Hall responded to Ms. Stark's conclusion about the health and welfare impacts from the operation of wind turbines adjacent to her residential neighborhood. Dr. Hall admitted that he was neither an audiologist nor epidemiologist, and could not predict whether the Wind Project will cause or contribute to the health problems of local residents.<sup>109</sup> He, however, conducted a literature review on whether wind turbines impact public health and limited his testimony to this review.<sup>110</sup> Because of the thousands of papers, articles and report published regarding potential health impacts from operational wind turbines, Dr. Hall emphasized reports from international and state governments, and papers from 2014 and later, with a preference for papers that comprehensively reviewed the literature.<sup>111</sup> He stated that the "general conclusion [from the literature review] is that there is no consistent evidence that

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<sup>108</sup> *Id.*; Mountain Direct at 3.

<sup>109</sup> Hall Surrebuttal at 2.

<sup>110</sup> *Id.*

<sup>111</sup> *Id.* at 2-3.



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wind turbines directly cause negative health impacts to people."<sup>112</sup>  
Dr. Hall discussed four problems that he found with the research.

According to Dr. Hall, some of the research lacked objective measurements as they studies were based on participants' self-reporting their health status and issues and, in some instances, the participants were unable to recall when the health symptoms arose. Further, he explained that most of the studies used a "cross-sectional design in that the relationship between exposure to wind turbines was measured to a health outcome at a particular point in time."<sup>113</sup> He indicated that this type of study is not sufficient to determine that the wind turbines are the cause of the symptoms. Further, he indicated that most studies had a small number of participants, which suggests a risk of selection bias.<sup>114</sup> Finally, he noted that certain confounding factors that could contribute to health issues are not separated out from exposure to wind turbines, such the age of the participant, with older participants perhaps being less healthy than younger participants as well as, among other things, pre-existing chronic diseases, attitude toward wind projects, negative or positive expectations about the possible impacts of wind projects, and visibility of or being the recipient of economic benefits from a wind project.<sup>115</sup>

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<sup>112</sup> *Id.* at 3

<sup>113</sup> *Id.* at 4.

<sup>114</sup> *Id.*

<sup>115</sup> *Id.* at 4-5.

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(iii) *Pro Se Parties*

*Pro se* witness Spiggle explained that he has studied the issue of adverse health effects of persons residing in close proximity to wind turbines.<sup>116</sup> Based on his review of peer reviewed scientific literature and his interviews with persons who sought him out to discuss their health issues arising after wind turbines went into operation near their homes, he opined that, without appropriate set back distances between the Project's turbines and residential structures, the health and welfare of the people residing near Dan's Mountain will suffer.<sup>117</sup> Dr. Spiggle compared the so-called Wind Turbine Syndrome to a post-traumatic stress disorder ("PTSD"). According to Dr. Spiggle, placing wind turbines in rural communities is "often an ongoing traumatic and stressful experience." He explained that initially PTSD was thought to occur only in persons with pre-existing mental disease, but this assumption has been debunked. He recounted symptoms that the persons he interviewed described that are similar to the criteria of PTSD: negative alterations in cognition and mood, externalization of anger, expression of anxiety or fear-based symptoms, avoidance attempts and a persistent negative emotional state.<sup>118</sup>

Dr. Spiggle listed a number of the peer reviewed scientific journals and public health organizations that have

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<sup>116</sup> Spiggle Direct at 2.

<sup>117</sup> *Id.*

<sup>118</sup> *Id.* at 3.

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addressed the issue of wind turbines and human health.<sup>119</sup> Two of the articles he summarized were specific to studies conducted on the health effects of wind turbines, but the majority of the studies addressed the impact of sleep deprivation. He also described the "Precautionary Principal" in policy making, which cautions approval of an activity when the cause and effect relationship between the activity and environmental or health issues is not fully known.<sup>120</sup> Dr. Spiggle recommended denial of the CPCN because "[t]he stipulated setbacks are clearly unsafe."<sup>121</sup> Dr. Spiggle testified that he was not being paid for his testimony.<sup>122</sup>

In Attachment A to his testimony, Dr. Spiggle included setback distances from the turbine that had been prescribed in Europe (Bavarian: 10 times the total height of the turbine; Rhineland-Palatinate (southern Germany state): 1,100 meters (3609 feet); Ireland (bill): 10 times the total height of the turbine) and in the United States (Umatilla County, Oregon and Riverside, California: 10,561 feet; Catarunk, Maine and Moscow, Maine: 8,000 feet; Montville, Maine and Buckfield, Maine: 13 times the turbine height; Fayette County, PA: 6,000 feet; and Trempealeau

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<sup>119</sup> *Id.* at 5-6.

<sup>120</sup> *Id.* at 6-7.

<sup>121</sup> *Id.* at 8.

<sup>122</sup> *Id.* at 7.

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County, Wisconsin, Sumner, Maine and Hillsdale County, Michigan:  
5,280 feet).<sup>123</sup>

In his surrebuttal testimony, Dr. Spiggle took exception to PPRP hiring a consultant to respond to the *pro se* parties' testimony on the potential health impacts from wind turbines. He discounted Dr. Hall's conclusions and reiterated his opinion that the health and welfare of individuals living on Dan's Mountain and its vicinity will be "materially and adversely impacted."<sup>124</sup> He suggested that the Commission may mitigate the health impacts by setting appropriate setback distances and enforceable noise restrictions on the Project. Dr. Spiggle also was critical of Dr. McCunney because Dr. McCunney did not indicate in his pre-filed testimony whether he was being paid or not for his testimony.<sup>125</sup> Dr. Spiggle also asserted that his observational studies should be given more weight than "any paid professor" who is making observations from a computer.<sup>126</sup>

Dr. Spiggle attached a two-page article recommending six best practices to properly site wind turbines to mitigate or obviate adverse health effects to individuals living nearby. One of the caveats of the article is even if the best practices are implemented, "subjective variable (e.g., attitudes and expectations) are strongly linked to annoyance and have the potential to

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<sup>123</sup> *Id.* at 13.

<sup>124</sup> Spiggle Surrebuttal at 5.

<sup>125</sup> *Id.*

<sup>126</sup> *Id.* at 7.



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facilitate other health complaints via the nocebo effect. Therefore, it is possible that a segment of the population may remain annoyed (or report other health impacts) even when noise limits are enforced."<sup>127</sup> Among the suggested best practices is that a preference be given to sound emissions of  $\leq 40$  dBA for non-participating receptors, measured outside, at a dwelling, and not including ambient noise."<sup>128</sup>

At the hearing, Dr. Spiggle indicated that he had interviewed approximately 20 individuals who live adjacent to wind turbines, between 1600 and 2500 feet.<sup>129</sup> He said the people came to him to tell their story.<sup>130</sup> He indicated that he conducted no physical examination of the individuals because he is retired from clinical medicine.<sup>131</sup> He stated that he did not necessarily take a full history of any pre-existing medical conditions nor did he use any questionnaires or lists of question during the interviews.<sup>132</sup> He explained that he initially had a questionnaire, but "it was not conversational and it didn't work, probably because I'm not a researcher."<sup>133</sup> He noted the similarity of each person's stories as to the sleep deprivation each reported as a result of the wind turbine's operation. He therefore concluded that the sleep

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<sup>127</sup> *Id.*, Attachment 5-1 at 1.

<sup>128</sup> *Id.*

<sup>129</sup> Transcript at 200.

<sup>130</sup> *Id.*

<sup>131</sup> *Id.* at 205.

<sup>132</sup> *Id.* at 225.

<sup>133</sup> *Id.*

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deprivation was the cause of the person's complaints of stress and other personality changes.<sup>134</sup> He recommended that a setback distance that exceeds 2 kilometers is required to guard against adverse impacts on the health and welfare of nearby residents.<sup>135</sup>

Dr. Spiggle also offered that when he was a County Commissioner, he voted to disapprove the Pinnacle Wind Project and indicated that he wished he had done more to have the other two commissioners who voted to approve it change their votes. Since that time, he had undertaken to learn more about possible health risks associated with wind turbines.<sup>136</sup>

*Pro se* witness Hasslinger explained that he became interested in industrial turbine sickness after a number of his patients began complaining of head pressure, dizziness, and fatigue; he characterized it as "general dysphoria."<sup>137</sup> As he worked with patients that lived near wind turbines, he noted a change in their demeanor, which appeared to be a result of sleep deprivation. He indicated that there were two initial patients that caused him to initiate his research on potential health impacts caused by wind turbines, and currently knows 10 other individuals or has conversed with them as to the effects of wind turbines on them.<sup>138</sup> According to Dr. Hasslinger, in addition to the

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<sup>134</sup> *Id.* at 226.

<sup>135</sup> *Id.* at 227.

<sup>136</sup> *Id.* at 228.

<sup>137</sup> Hasslinger Direct at 2.

<sup>138</sup> Appl. Ex. 16.

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annoyance of the flicker of the sun caused by the blades turning, he found studies on the inaudible noise caused by infrasound when the air is compressed as the blades travel past the support tower.<sup>139</sup> He said this infrasound caused many issues, including inner ear complaints, sleep deprivation, and other systemic injuries to various tissues. He attached a case study on "Wind Turbine Acoustic Investigation Infrasound and Low-Frequency Noise - A Case Study" ("Case Study") to his testimony. He recommended the Commission deny the CPCN for the Project.

The Case Study was of three turbines installed in Falmouth, MA. One of the turbines ("WIND1") was installed approximately 1300 feet from residential structures and the second approximately 1700 feet from residential structures ("NOTUS"). The third turbine was not operational during the study. The residents near WIND1 complained of fluctuating noise (the swishing and thumps). Noise measurements conducted by the residents reflected the sound level to range from the mid-30s to mid-40s dBA, depending on the time of day, wind speed and wind direction. Once both WIND1 and NOTUS were operational, many residents reported that they were having significant difficulties living in their homes and were experiencing headaches, ear pressure, dizziness, nausea, apprehension, confusion, mental fatigue, and lassitude. During high winds, the symptoms were worse. The acoustic measurements were taken over a three-day period. The study concluded that wind turbines placed

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<sup>139</sup> *Id.*

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too close to residential structures may result in "rapid onset of adverse health effects."<sup>140</sup> Also it determined that "A-weighted sound levels did not correlate to adverse health effects experienced." The report suggested that "[i]t appears prudent to include a margin of safety sufficient to prevent inaudible low-frequency wind turbine noise from adversely affecting humans."<sup>141</sup>

*Pro se* witness James noted that the Maryland regulations provide guidance on audible sound levels, but did not have a standard for vibrations.<sup>142</sup> Based on an Environmental Protection Agency guidance document, he recommended that the Maryland regulatory maximum thresholds be adjusted by 15 dBA; thus, the maximum night threshold level for the Project should be 40 dBA.<sup>143</sup> He also opined that the Maryland regulations as to noise levels are not appropriate "for the type of noise emitted by wind turbines," and said that dBA is not a proper measurement method.<sup>144</sup> He stated that the World Health Organization has recommended that dBA thresholds for a noise source emitting significant acoustic energy be dropped by 10 dB or more, or that new thresholds using a different metric, such as dBC or dB linear, that includes the frequency range of interest, be used instead.<sup>145</sup> Further, he stated

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<sup>140</sup> Case Study at 138.

<sup>141</sup> *Id.*

<sup>142</sup> James Direct at 2.

<sup>143</sup> *Id.* at 3.

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*



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that in a paper he presented in 2008 at the INCE Noise Conference, he recommended 35 dBA or 50 dBC as the maximum sound levels outside a home and preferably at the property line. He indicated that since then, these limits were modified to include penalties for tones and fluctuating noise by adding a 5 dB penalty similar to the Maryland regulations.<sup>146</sup>

As to infrasound, Mr. James explained that it is unknown as to what the safe level is for the infrasound pressure pulsations produced by the wind turbines, but he indicated that it is known that when the average sound pressure level of the blade pass pressure is over 50 dB and when the pressure peaks are in the high 60 dB and over range, people complain of migraines, tinnitus, dizziness and other sensations.<sup>147</sup> He stated that many of his colleagues and he had recommended that the setback from the wind turbine to a residential structure be at least 1.25 miles, with others suggesting setbacks of 2 miles or more. Mr. James also cited a position paper issued by the Polish National Institute of Public Health and Hygiene, which concluded that a setback of 1.25 miles (2 km) was necessary. He represented that the Polish government adopted this recommendation and enacted it as the setback standard for wind energy projects.<sup>148</sup> He listed the effects

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<sup>146</sup> *Id.*

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* Pursuant to a bench request, Ms. Stark submitted a copy of the Polish law referenced by Mr. James. The law adopted a separation distance of at least ten times the height of the wind turbine measured from ground level to the top of the blade, not a blanket 1.25 mile separation distance.

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of wind turbine noise that has been documented in literature, including annoyance and direct effects on health through sleep deprivation, when sound levels are at or above 35 dBA outside a home.<sup>149</sup>

Mr. James indicated that he did a study of an eight wind turbine project in Wisconsin, which resulted in the County Board of Health declaring the project a human health hazard.<sup>150</sup> He stated that individuals more than 4 miles from the nearest wind turbine reported symptoms affecting their health. He cited a number of other studies which linked the infrasound pulsations with symptoms. Additionally, he described a Health Canada-sponsored study conducted during the 2012-2013 period, which concluded that even 35 dBA noise threshold levels and setbacks of at least 1.25 miles cannot be assumed to be protective.<sup>151</sup> Finally, he claimed that the Applicant's witness, Dr. McCunney, who authored the document submitted by the Applicant entitled "Wind Turbine Sound and Health Effects, an Expert Panel Review, admitted under oath in a hearing in Vermont that "if it was his home he would want limits of 35 to 40 dBA," but the document stated that levels of 45 dBA would not pose any risks.<sup>152</sup> Mr. James also asserted that the document had been discredited in many hearings, but the wind developers continue to rely on it.

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<sup>149</sup> *Id.* at 5.

<sup>150</sup> *Id.* at 6.

<sup>151</sup> *Id.* at 7.

<sup>152</sup> *Id.*

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In his surrebuttal testimony, Mr. James presented two graphs that he said depicted the infrasound blade pass tones and harmonics at a home 3300 feet from the nearest wind turbine tower and another home 22,000 feet from the nearest tower at the bottom.<sup>153</sup> Based on these test results, Mr. James concluded that "one cannot rule out that even at distances over 4 miles or more topography an individual sensitivities can result in adverse health effects from the blade pass pressure pulsations."<sup>154</sup> For infrasound, he stated that "the total energy of the tones and harmonics seen in the spectrogram shall not exceed 50 dB total unweighted sound pressure level when the blade pass; and harmonics are combined to get the energy sum of the tonal energy."<sup>155</sup> He said this limit should apply when tones are present and more than 3 dBA above the average background infrasound that would present at those frequencies if the total energy for the blade pass and harmonics was excluded.<sup>156</sup> He asserted that low-frequency noise should be less than 50 dBC inside homes, based on measurements that include frequencies down to at least 5 Hz. In addition, the difference between a dBC and dBA reading inside a complainant's home "should not exceed 15 dB during any period of wind turbine operation, particularly during sleeping hours."<sup>157</sup>

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<sup>153</sup> James Surrebuttal, Exhibit 1.

<sup>154</sup> James Surrebuttal at 3.

<sup>155</sup> *Id.*

<sup>156</sup> *Id.* at 3.

<sup>157</sup> *Id.* at 4.



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Mr. James also commented on Dr. Hall's testimony, and pointed to the number of experts, including himself, whose papers and studies show clear association between wind turbine noise emissions and adverse health effects. Mr. James dismissed Dr. Hall's statement that "at a distance of 1.5 km (4,921 feet) or more, infra sound does not exceed the levels from localized wind conditions" because it is "overly broad and generalized."<sup>158</sup> He also disagreed with Dr. Hall's comment that annoyance causes the symptoms because the argument fails to "put the weight on the symptoms, causing the annoyance and imply that the symptoms are not real."<sup>159</sup> He further stated that long-term annoyance means long-term stress, and such stress levels lead to illness.<sup>160</sup> Further, Mr. James observed that persons with an economic benefit in the wind project may influence the results of a study on health impacts as they may have agreed not to make adverse statements.<sup>161</sup> Mr. James also commented on the Meta study and disagreed with the results that wind turbines would not likely have impacts on sleep quality at distance of over 500 meters with noise levels of under 45 dBA. He pointed to other studies or research that found noise levels in excess of 40 dBA caused adverse health impacts.

Mr. James asserted that the results of Mr. Guldberg's study conducted from residences near Fourmile Ridge Wind project

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<sup>158</sup> *Id.* at 7

<sup>159</sup> *Id.* at 8.

<sup>160</sup> *Id.* at 9.

<sup>161</sup> *Id.*



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were suspect, because the operator of the project may have set the wind turbines to operate in noise reduced modes during the test period.<sup>162</sup> Nor did he find any correlation by the people who filed the complaints that the conditions during the measurements represent the conditions about which they had complained.<sup>163</sup> He alleged that there have been a number of times when measurements have been conducted for compliance testing where later investigations into the actual state of the wind turbines using SCADA data revealed that the operator was not operating the wind turbines in their highest energy production mode for the conditions at the blades.<sup>164</sup> Finally, he noted that "numerous acoustical experts have reported that the measured sound levels taken during periods when the complainant is present and agrees that the sounds of wind turbine are similar to the complaint condition can be as much as 10 to 15 dBA higher than the average sound level predicted in the sound models."<sup>165</sup> He concluded that "there is no assurance that the Dan's Mountain Wind project will not also exceed the 55 dBA limits set by the Maryland regulations."<sup>166</sup>

At the hearing, PPRP explored with Mr. James as to whether there were any accepted standard methods for measuring infrasound, such as by ANC or ISO, which he acknowledged did not

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<sup>162</sup> *Id.* at 11.

<sup>163</sup> *Id.*

<sup>164</sup> *Id.* at 12.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*



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exist.<sup>167</sup> Mr. James indicated that his testimony, alleging that operators were not operating the wind turbines at full operational mode during compliance testing, was based on information derived from a number of lawsuits that he has been involved in. He was able to only identify one specific occurrence because he was not "at liberty to give the details because they were all settled with gag orders."<sup>168</sup>

*Pro se* witness Garlitz testified that he currently lives approximately 1600-1700 feet from six turbines. He described the noise from the turbines "like a pulsating jet engine." He also commented on the effect of the morning flickers as well as the red lights flashing at night. He indicated that he wakes up in the morning fatigued, but once he is away from his house for about an hour, he feels better and regains his normal energy level. He said when he was home he was "tired, grumpy, and short tempered."

*Pro se* witness Tony Bequette testified as to the effect of the wind turbines in the Fourmile Ridge Project on his family and him. His residence is 2115 feet, 2598 feet, and 3198 feet from three nearest turbines.<sup>169</sup> He indicated that he had trouble sleeping. He stated that they were unable to keep the windows open in the home and to use a campfire site due to the noise emitted by the turbines. Due to one of his daughters having a medical

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<sup>167</sup> Transcript at 509

<sup>168</sup> Transcript at 512.

<sup>169</sup> Transcript at 163.



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condition that makes her hearing hyper-sensitive, he said the noise sometimes hurts her ears. He indicated that his other daughter has begun to have headaches, which she did not have before the turbines were placed in operation. He described the family as being uncomfortable, and he found himself to be irritable when he was in the house. He does not believe that they can move because of the financial loss they might take.

Pro se witness Katie Kimmel-Dolchan testified about the adverse impacts from the wind turbines in the Fourmile Ridge Project, which are 392 feet from the property line and 1210 feet from the house. She states that she is unable to sleep well and has had bouts of severe physical fatigue, nausea, tinnitus, arthritic joint pain, and irritability as well as experiencing the loss of the ability to concentrate. She indicated that her doctor is willing to prescribe a sleep aid, but she does not want to have to use a drug to be able to have a good night's sleep. She also believes that they will be unable to sell their home without a "large sacrifice."

Pro se witness Bristow, who along with her husband, owns 28.8 acres of unimproved land about 1,251 feet from one of the Fourmile Ridge wind turbines and a home about 3,798 feet from the closest turbine, testified that, in the winter when all the windows are closed, they can hear the whooshing of the wind turbines when the prevailing winds carry the sound. Also, when working on the farm, if the prevailing winds are toward the farm, she said the sounds emitting from the turbines are very disturbing.

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Pro se witness Eileen Stoger, who lives approximately 2600 feet from the 16 turbines at Fourmile Ridge Project, testified that she has severe disturbance of sleep, dizziness, hearing issues, and visual disorientation due to the wind turbine blades "flicker." She described the noise from the turbines during windy weather as a ratcheting, grinding sound.

Pro se witness McKenzie lives approximately 1600 feet from the nearest turbine at the Twin Ridges Wind Project in Southern Somerset County, Pennsylvania. She described the noise impact on her and her husband's health. She explained that she and her husband took sound level measurements, which at times was 81 dBA outside of the house. They made a complaint to the operator, but obtained no relief.

**c. Discussion and Findings**

No Party disputes that the wind turbines will emit or produce audible noise, infrasound or low frequency sounds. There, however, is no consensus among the Parties or the scientific community as to what the "ideal" setback or separation distance between a residential structure and a wind turbine should be. Nor is there a consensus among the Parties or the scientific community as to whether operational wind turbines directly or uniquely cause adverse health symptoms to those residing in close proximity of an operating turbine. Finally, there is no agreement among the Parties or the scientific community as to the appropriate threshold sound levels necessary to avoid annoyance and/or potential adverse

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health effects to those residing at or beyond the recommended minimum separation distances. In this record, I have recommendations for the separation distance that range from 2,000 feet (per the County's WECS Ordinance) and in excess of 1.25 miles (per the *Pro Se* Parties' witnesses). Mr. James believes that infrasound and low frequency sound may adversely impact an individual's health up to four miles from a wind turbine. I have recommended maximum sound threshold levels outside of a dwelling from 35 dBA or less for the nighttime to 55 dBA for the nighttime.

The Applicant's and PPRP's modeling results for audible noise that may be emitted from the operational turbines estimate that, for non-participating properties, the maximum nighttime dBA level will not exceed 50.1 dBA at the property lines of all adjacent properties to the wind turbines. Due to the rural nature of the community surrounding the Wind Project, Mr. James recommends a nighttime threshold of no more than 40 dBA, with 35 dBA being preferable, and a minimum separation distance of 1.25 miles from a wind turbine to a residential structure.

The record contains sufficient evidence to find that, under certain conditions, the noise of the wind turbines at night may be at a level that may disturb an individual's sleep. As Dr. Spiggle testified, sleep deprivation may lead to adverse effects on a person's health and welfare, whether caused by an inability to sleep due to stress or due to noise. On the other hand, even if lower noise thresholds recommended by Mr. James were adopted, the studies also present evidence that the existence of

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the wind turbines may still result in annoyance and stress to those who find the construction of the turbines unacceptable. Consequently, individuals living in close proximity of the Wind Project may continue to report adverse health symptoms from the operation of the turbines.

In setting the threshold for audible noise during the nighttime for non-participating properties, the rural nature of the area also must be taken into consideration. The evidence presented by the *pro se* Parties (and supported by a number of the persons commenting at the evening hearing) reflects that many individuals have moved to or reside in the area of Dan's Mountain because of the quietness of the area, especially at night. As PPRP noted, 47 dBA sounds may "represent a noticeable increase over existing background noise levels."<sup>170</sup> Unlike most other potential producers of noise in a rural setting (e.g., highway noise, insect noise) that may not be constant or persistent, the wind turbines may create a constant source of noise with occasional respite based on the wind conditions or when maintenance is conducted on one or more turbines. Ms. Mountain concluded that due to the "'periodic' noise - an on-off sound lasting less than 2 second," which is applicable to the sound produced by the wind blades, "the most conservative noise limit applicable to the wind turbines would be 50 dBA."<sup>171</sup>

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<sup>170</sup> PPRP ERD at 56.

<sup>171</sup> Mountain Surrebuttal at 4.

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I conclude that, as the Applicant is bringing a perceived "nuisance" to developed rural communities, the Applicant's operation must be implemented to reduce the "annoyance" level even though it may never be able to eliminate it. To balance the existing non-participating property owners' right to quiet enjoyment of their land and the Applicant's interest in developing a wind project in the area, I find that the maximum nighttime sound threshold may not exceed 45 dBA on the outside of a non-participating dwelling. Moreover, I find that the daytime threshold level should not exceed 55 dBA on the outside of a non-participating dwelling from the nearest operational turbine. Based on the Applicant's noise assessment, as well as PPRP's, the Wind Project's operation should not exceed these threshold levels for the non-participating properties.

In regard to infrasound, Dr. McCunney indicated that audible infrasound would dissipate approximately 300 - 457 meters (984 feet to 1500 feet) from a wind turbine.<sup>172</sup> The Case Study offered into evidence by Dr. Hasslinger studied the impact of infrasound up to 1700 feet. Mr. James' analysis of the infrasound study conducted at the McKenzie home, which is approximately 1640 feet from the wind turbine, concluded that the symptoms complained of by the McKenzies may result from exposure to infrasound.<sup>173</sup>

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<sup>172</sup> McCunney Rebuttal at 9.

<sup>173</sup> Appl. Ex. 17.



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In its reply brief, the Applicant challenges the credibility of Mr. James' conclusions that the infrasound was the direct cause of Mrs. McKenzie's nausea. The Applicant points out that Mr. James used "a chart from a military study showing that stimulation of the body at frequencies similar to those of the wind turbines causes nausea" that is "from a study of 'motion based flight trainers' ... and [it] graphed the G-force and speed in meter per second with which the test subjects were being shaken and moved around in a mid-1980s Navy jet flight simulator while also experiencing vibrations."<sup>174</sup> The Applicant argues that Mr. James' use of the military study to determine that Ms. McKenzie was feeling nauseous due to the "frequencies" of the wind turbine, without any evidence of vibrations being felt within the McKenzie house, was either "severe incompetence or a serious intent to mislead."<sup>175</sup> The Applicant also questions the credibility of Mr. James as to testimony on several other matters, which the Applicant alleges was either false or misleading.<sup>176</sup>

The letter from Mr. James to Mr. and Mrs. McKenzie dated June 2, 2014,<sup>177</sup> provides none of the specific measurements, notes or logs as attachments nor any analysis of this data. The letter evidences that Mr. James did not perform the measurements nor was he present at the time the data was collected. The conclusion of

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<sup>174</sup> Appl. Reply Brief at 9-10.

<sup>175</sup> Id. at 10

<sup>176</sup> Id. at 9-12.

<sup>177</sup> Appl. Ex. 17.

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the health impacts attributable to the blade passing frequencies are based on general data that Mr. James has failed to explain what relevance, if any, they have to the actual conditions in and around the McKenzies' home. Further, Mr. Guldberg identified several ANSI standards for measuring and assessing low frequency noise and infrasound, but stated that "Mr. James is not referring to any such standards."<sup>178</sup> Additionally, Mr. Guldberg testified that the "micro barometer" referenced by Mr. James in the McKenzie letter is not a device "used in our profession for community wind, community sound studies of any type."<sup>179</sup>

I find Dr. McCunney's testimony more credible than that of Mr. James as to the distance at which audible infrasound and low frequency sound will dissipate, and the potential health impacts that may be caused by sub-audible infrasound and low frequency sound beyond those distances. Recognizing the factors that may bias or limit each of the studies relied upon by the Applicant, PPRP and the *pro se* parties to form each of their positions as well as potential bias by each of the Parties' witnesses, I conclude that the County's adoption of a 2000 foot separation standard between a residential structure and a wind turbine for non-participating properties is reasonable and is sufficient distance to reduce any potential impact to an individual from infrasound or low frequency sound, especially as the audible noise threshold

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<sup>178</sup> Transcript at 444-445.

<sup>179</sup> Transcript at 500.



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levels outside the dwelling are closer to the range recommended by Mr. James.

On the other hand, after considering the evidence in the record, I conclude that requiring compliance with the setback and separation distances in the WECS Ordinance for those property owners that are willing to agree to live in close proximity to a turbine is not reasonable. The WECS Ordinance permits variances to be granted by the Board of Zoning Appeals with the consent of the property owner; consequently, I conclude that the County has not made any finding that the prescribed setback and separation distances are absolutely required to protect the health, safety and welfare of those residents.

My general conclusion, based on all the evidence presented, is that not every individual that resides or works in close proximity (less than 2000 feet from a wind turbine) will necessarily report or have health symptoms directly caused or exacerbated by the operation of a wind turbine. I do not discount that the persons are experiencing the symptoms reported, but the evidence in the record does not support a finding that operating wind turbines affect every person in the same manner. Also, the record suggests that the self-reported health symptoms may be due to a number of various factors, not solely due to the proximity of the wind turbine to the residential structure. Certainly, there is a minimum distance that common sense dictates that a wind turbine must be located from a residence or other regularly occupied structure. Based on the evidence in this matter, I conclude that a



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"safe" separation distance for those persons who are willing to waive the protection of the WECS Ordinance prescribed distances is determined by the distance at which the audible noise thresholds exceed the maximum noise levels under COMAR for residential structures.

Based on the noise assessment conducted by the Applicant, no property, whether participating or non-participating, will have a noise level that exceeds the COMAR standards either at the residence or the property line. Consequently, I find that the separation distance set in the WECS Ordinance for these non-participating properties is not needed to prevent the residents of these properties from being subjected to a noise threshold in excess of COMAR. Nor am I persuaded that the distance between these structures and the wind turbines will present a health or safety concern as to infrasound and low frequency sounds to individuals who elect to continue to reside or work in the structures once the Wind Project becomes operational.

My decision to apply a separate separation distance for Participating Properties that is not in compliance with the WECS Ordinance is informed, in part, by Mr. Friend's testimony that the Participating Property Owners have the choice, once the Wind Project is operational, to sell the property on which the residence is located to the Applicant without requiring any basis for the election. PPRP final Recommended Licensing Condition No. 9 requires the Applicant to provide PPRP and the Commission with a copy of the purchase agreement, land lease, or similar agreement

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with the owners of the property on which the Project site is located. If the agreements between the Applicant and the Participating Owners do not meet the description of the agreements that must be submitted,<sup>180</sup> then I modify the Condition to include "any agreement between a property owner who applied for a variance of the WECS Ordinance," to allow verification that in fact a property owner may indeed sell its residence to the Applicant upon the Wind Project becoming operational.

I find the separation distance between the wind turbine and non-participating residential structures must comply with the WECS Ordinance, but not to the Participating Property Owners that have agreed to accept the risks and tolerate the conditions that may arise due to the distance between the turbines and their residential structures. I also accept the PPRP Condition No. 29 that requires the Applicant to conduct noise analysis after operation of the turbines begin as well as the conditions accepted by the Applicant as to the process for making a complaint (Condition No. 35) and who will conduct any analysis associated with a complaint (Condition No. 34).

Finally, even though I conclude that the sound level thresholds are sufficient to mitigate the potential significant adverse impact on the non-participating property owners' quiet enjoyment of their property, I find that, unlike other licensing

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<sup>180</sup> The Applicant states that some of the landowners live on portions of the properties that have not been leased for Project purposes.

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conditions accepted herein, it does not result in a finding of no adverse impact to the surrounding residential communities. Per Mrs. Bristow's testimony, the audible noise from the wind turbines may be more prevalent based on the direction of the prevailing winds. Consequently, even with the maximum sound threshold established, the wind turbines may continue to be a source of "disturbing" noise within the surrounding residential communities. Thus, I determine that the inability to fully mitigate the noise levels while establishing a "reasonable" separation distance must be weighed as a negative factor when considering whether the Wind Project is in the public convenience and necessity.

**2. Decommissioning Bond - PPRP Final Condition No. 21.**

The County's WECS Ordinance requires that an industrial WECS ("IWECS") facility owner or operator post a decommissioning bond equal to 100% of the costs estimates for each turbine based on the removal and disposal of all the components of the IWECS as well of stabilization and restoration of the areas disturbed by the IWECS, without regard to salvage value. The IWECS owner or operator is required to hire an independent and certified professional engineer to prepare a cost estimate on which the bond amount will be based; the cost estimate is required to be prepared prior to the County issuing a permit to allow the construction of the



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facility and immediately following construction completion and then every five years thereafter.<sup>181</sup>

According to the Applicant's ERD, at the end of the useful life of a turbine, it will either be decommissioned or replaced/upgraded for continued operation.<sup>182</sup> Applicant represents that all decommissioning and restoration activities will comply with local government requirements and applicable federal, state, and local permits.<sup>183</sup> As part of the decommissioning, the Applicant states that it will remove the above-ground structures, concrete foundations to a certain depth below the surface, and any access road, if requested to do so by the land owner, as well as restore the topsoil (including revegetation and seeding) and monitor and remediate the disturbed areas for a two-year period.<sup>184</sup>

PPRP's final Condition No. 21 requires that the Applicant, prior to commencement of the Project, submit a decommissioning plan to PPRP, the Commission, and the County. Included in the Condition, is the further requirement that the Applicant post either a performance bond or submit a corporate guarantee (subject to appropriate credit rating requirements) payable to the County to cover the cost (net of salvage value) of decommissioning the Project prior to commercial operation of the Project. The Condition also requires that, every ten years, the

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<sup>181</sup> See County Code §360-92E.

<sup>182</sup> Appl. ERD at 0012.

<sup>183</sup> Id.

<sup>184</sup> Id.

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Applicant prepare an updated estimate of decommissioning costs adjusted for inflation and submit the update to the Commission, PPRP and the County. Further, the Condition requires the Applicant adjust the amount of the financial assurance guarantee to cover the revised estimate of decommissioning costs.

The Applicant asks that Condition No. 21 be revised "to provide first priority for decommissioning funds to the owners of the properties on which the turbines will be located;"<sup>185</sup> otherwise, it does not oppose including the Condition to which its CPCN would be subject. It argues that it is the landowners who will be harmed if the Company does not undertake and complete the removal of the components of the turbine from their properties. Further, it asserts that the County has not made any commitment that the funds would be spent for decommissioning. Consequently, the Company concludes that making the financial guarantee payable to either the landowners or the County is reasonable and addresses its concerns that the County may withhold the funds to remove the Project components from a participating landowner's property.

In response to Applicant's concerns about providing a dual payment of the decommissioning bond to the landowners and the County, the County indicated that if the Commission were to include in Condition No. 21 the requirement that Applicant comply with § 360-92D of the WECS Ordinance, then the County would be expressly required to cover the costs of decommissioning using the

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<sup>185</sup> Appl. Init. Brief at 40.

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decommissioning bond procedure should the operator/owner of the Project fail to comply with an Allegany County request to decommission the Project.<sup>186</sup>

In its reply brief, PPRP notes that the "Applicant is free to work with the co-participants with regard to decommissioning and can address it as a private contract matter, but that is separate and apart for the purposes" of Condition No. 21. I agree with PPRP. The decommissioning bond contemplated by the WECS Ordinance and Condition No. 21 is not designed to benefit the landowners who are being compensated by the Applicant for the use of their land. Further, allowing the landowner to draw upon the decommissioning bond may financially benefit the Applicant because it may allow the Applicant to avoid its decommissioning obligations, perhaps in contravention of its contracts with the Participating Property Owners. I find that the decommissioning bond contemplated by Condition No. 21 is to protect the County from bearing the costs of the removal of wind turbines in the event the Applicant or the applicable landowner fails to remove the device once it has been decommissioned or abandoned. The Applicant may separately provide a surety bond or other financial guarantee for the benefit of the participating landowners through a contract or otherwise.

To address the Applicant's concerns that the County may not use the surety bond as intended, I conclude that Condition

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<sup>186</sup> County Reply Brief at 6.



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No. 21 must include a requirement that the surety bond be used appropriately by the County and only in the event the Applicant abandons or decommissions its Project and the Applicant or the applicable landowner fails to remove the wind device components and restore the land as required under its decommissioning plan. I decline the County's invitation to simply include compliance by the Applicant with Section 360-92D because the section permits the County to determine when a turbine or the Wind Project has been abandoned or is considered to be out of operation and to require the owner/operator of the wind facility remove the wind device components.

Specifically, the County, at its sole discretion, may require the operator/owner to decommission and remove the device(s) if any individual turbine ceases to generate electricity during a continuous 180-day period or a wind farm was to cease generating electricity during a continuous 180-day period. If the owner/operator does not comply with the request, the County "shall" use the bond to cover the costs of decommissioning. It is unclear as to how the County is able to evidence that a wind device or a wind farm "ceases to generate electricity" other than by an individual asserting that he/she has not seen one or more wind turbines in operation for an 180-day period. Nor does the provision include a mechanism by which the owner/operator of the wind facility is able to rebut the presumption. With the controversy of the construction of a wind farm in the County, there may be some mischief to be had by the vagaries of this portion of the WECS

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Ordinance and I decline to include the subsection in Condition No. 21.

**3. Interference with Telecommunications**

Section 360-92C addresses potential electromagnetic interference by the IWECS with telecommunication systems/towers and radio/television/satellite facilities, including transmission towers in the County. Under this subsection, the IWECS applicant must prepare and submit an electromagnetic interference analysis ("EIA") and submit the EIA to persons specified in the subsection, who have the right to comment on the EIA. The subsection also requires the IWECS operator post a bond in the amount of \$100,000 to cover the costs of preparation of subsequent EIAs, in the event there are complaints of electromagnetic interference after construction of the IWECS project.

Pursuant to this subsection, the Applicant conducted and submitted an EIA on May 1, 2015. In the EIA, the Applicant identified an existing point-to-point microwave system and two point-to-multi-point microwave beam paths that require realignment or replacement to avoid interference from the Wind Project's construction and operation.<sup>187</sup> The Applicant reached agreements with the owners of these systems to realign or replace the identified systems.<sup>188</sup>

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<sup>187</sup> Appl. ERD at 0036, 0440, and Appendix C.

<sup>188</sup> Friend Suppl. Direct at 8.

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The EIA, however, did not address the 330-foot communications tower planned to be constructed by the Maryland Institute for Emergency Medical Services Systems ("MIEMSS") near the southern point in the Wind Project's layout. The tower will be used for the Maryland Statewide Interoperable Network (First Responders Interoperable Radio System Team ("FiRST"), Allegany County 911 emergency communication facilities and other County uses, Maryland State Police communications, Maryland State Highway Administration communications, and MIEMSS.<sup>189</sup> The site for the tower is a 5 acre area owned by the County on top of Dan's Mountain.<sup>190</sup> Representatives of the Maryland FiRST project team ("Maryland FiRST") met with the Applicant in 2015 because of the team's concerns of the potential electromagnetic interference with this critical communications system from the Wind Project as well as concern over signal bounce that may occur and its impact to the public safety communications.<sup>191</sup>

The Maryland FiRST vendor, Motorola, is responsible for the design, operation and contract requirements of the system. As part of its contract, Motorola must guarantee 99.9999% reliability ("6-9 Level") to Maryland FiRST.<sup>192</sup> Under the initial design, Motorola was not able to provide this level of reliability guarantee due to the potential of interference that might be caused

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<sup>189</sup> PPRP ERD at 59.

<sup>190</sup> Hasenei Direct at 4.

<sup>191</sup> *Id.* at 5, 7.

<sup>192</sup> *Id.* at 4, 6.

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by the Wind Project.<sup>193</sup> According to Major Hasenei, Motorola has since made certain design changes and is willing to guarantee the 6-9 Level of reliability even if the Wind Project were constructed.<sup>194</sup> Major Hasenei explained that the 6-9 Level means that for 30.5 seconds a year "you don't have communications."<sup>195</sup> He said that the data stream for the system is constantly monitored in real time to ensure the reliability of the system; once any interference (whether weather or other causes) results in a bit error rate of below 10 to the 6<sup>th</sup> power, alarms are set to go off at that point.<sup>196</sup> Consequently, alarms will go off prior to the system reaching a 5-9s level (meaning 99.999% reliability).<sup>197</sup> Major Hasenei testified that, as a result of the monitoring and the trigger set for alarms, the interference will be taken care of before there is degradation of any of the communications on the Maryland FiRST system.<sup>198</sup>

Maryland FiRST, however, continues to have concerns about potential interference once the tower and the Wind Project begin operations.<sup>199</sup> PPRP final Recommended License Condition No. 28 addresses these concerns by requiring the Applicant to execute a Memorandum of Agreement ("MOA") with MIEMSS and Maryland

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<sup>193</sup> Transcript at 304 (Hasenei).

<sup>194</sup> *Id.*

<sup>195</sup> Transcript at 316.

<sup>196</sup> *Id.* at 318.

<sup>197</sup> *Id.* at 317.

<sup>198</sup> *Id.* at 323.

<sup>199</sup> *Id.* at 308.

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FIRST to document how all concerns regarding potential electromagnetic and radiofrequency interference from the wind turbines will be addressed.<sup>200</sup> As part of the MOA, the Applicant will be required to post a performance bond or corporate guaranty in an amount to be agreed upon by the parties to the MOA that will be used for future resolution of any documented interference.<sup>201</sup> Major Hasenei stated that the MOU would be written by the Maryland Attorney General's Office, and will have, among other things, some type of enforcement clause as well as operational procedures.<sup>202</sup>

The Applicant's witness Friend stated, at the hearing, that the Applicant agreed to PPRP's final Recommended Licensing Condition No. 28 and it intends to negotiate in good faith with MIEMSS and Maryland FIRST to execute the required MOA.<sup>203</sup> He further stated that he did not object to filing the MOA with the Commission as part of the record in this proceeding.<sup>204</sup> In its initial brief, the Applicant accepted Condition No. 28.<sup>205</sup>

OPC notes that Condition No. 28 "would arguably provide 'due consideration' to the Allegany County Wind Regulation,"<sup>206</sup> even though it would not require the Wind Project to be shut down in the event of interference with the Maryland FIRST communications as

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<sup>200</sup> PPRP Ex. 5.

<sup>201</sup> PPRP Ex. 5

<sup>202</sup> Transcript at 324.

<sup>203</sup> PPRP Init. Brief at 9.

<sup>204</sup> *Id.*

<sup>205</sup> Applicant Init. Brief at 24.

<sup>206</sup> OPC Init. Brief at 12.

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does the County's code provision. Pro se parties K.D. Park and W. Park argue that Condition No. 28 is not sufficient because the County has no control over the bond associated with the MOA, and "who will hold the money is questionable."<sup>207</sup> Further, they express concern that the licensing conditions do not address future interference caused by the Wind Project to other towers.<sup>208</sup>

Major Hasenei explained the level of reliability required for the Maryland FIRST system and the monitoring alerts that are put in place to ensure that the data stream reliability is not degraded below a 5-9s level in the event interference is detected alleviates my concerns that emergency communications within the County may fail should interference arise from the Wind Project's operations with the proposed tower. The fact that the MOA will be drafted by the State's Attorney General's office, not by the Applicant, also ensures that the MOA will adequately protect the State's and County residents' interests.

I therefore will accept PPRP's Condition No. 28 with two modifications. First, the executed MOA must be filed by the Applicant with the Commission within 10 business days after execution of the MOA by the parties to the MOA and served on the other Parties in this proceeding. Second, although the Applicant has conducted the EIA, as required by the WECS Ordinance, as the Parks' argue, it has made no commitment nor does Condition No. 28

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<sup>207</sup> Park Init. Brief at 9.

<sup>208</sup> Id.

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include any process should actual interference occur with the other existing communications tower. Consequently, I find that Condition No. 28 should include a process whereby, upon receipt by the Applicant of an interference complaint from the owner/operator of any communication tower in existence on Dan's Mountain as of the date of the Proposed Order, the Applicant is required to conduct an EIA performed by a third-party, non-affiliated consultant. If the complaint is found to be valid, the Applicant shall resolve the interference through good faith negotiations with the owner/operator.

**4. Groundwater Protection**

Section 360-92E of the County WECS Ordinance requires the IWECS applicant to post a bond in an amount recommended by the Allegany County Health Department for each turbine to be erected. A failure to post the bond results in the withholding of a permit to construct the turbine. Under terms of the subsection, the bond is held by the County's Finance Department to be used in the event of damage, disruption or loss of groundwater resources or associated infrastructure utilized to provide potable water supply to occupied structures within one mile of any portion of an IWECS project. The subsection also describes how the testing to verify that no damage or loss of groundwater resources has occurred after construction of the IWECS has been completed. The bond is released either upon satisfaction by the County Health Department or the expiration of five years, whichever comes first. The County Health

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Department, however, has the discretion to require additional bonding or extend the bonding period prior to the expiration of the five years.

PPRP's final Recommended Licensing Condition No. 25 requires the Applicant to take certain action to protect an owner's potable water supply within one mile of any turbine location, and similar to the provisions of Section 360-92E includes testing the well pressure and yield prior to the commencement of construction upon the request of an owner; providing the testing data to the County Health Department; re-testing the pressure and yield of a well upon the request of the owner no less than 12 months after construction is completed; repairing or replacing any well that has been demonstrated to be compromised; informing nearby residents of the availability of the pre-construction testing; and posting a groundwater protection bond of up to \$250,000 payable to Allegany County to cover drilling of replacement wells, if necessary (unless negotiated and agreed upon with the County). The Applicant opposes this Licensing Condition as a condition to the CPCN for the Wind Project.

The Pro Se Parties' witness Dodds testified that construction of the Wind Project, as proposed, would adversely impact seeps and springs in aquatic habitats located in the head-water areas of first order streams by reducing or eliminating the flow of groundwater to these areas. She said this reduction of groundwater recharge then reduces the amount of groundwater available to residential springs and residential wells. Further,

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she stated that the blasting required for construction of each turbine could further change the direction of groundwater flow, which also will impact residential springs and residential wells.

PPRP's witness Keating responded to Ms. Dodds' testimony as to the impact of the Wind Project's construction on springs and residential wells. According to Mr. Keating, the Wind Project will create an impervious surface that is two percent or less than the total watershed area and therefore will have no discernable effect on the amount of recharge to ground water. Nor did he agree with her testimony that the percussive drilling activities associated with the turbine construction will have an effect on the overall direction of ground water flow in the upper part of each watershed.

Applicant witness Eisner responded to Ms. Dodds testimony as well as discussed PPRP Recommended Licensing Condition No. 25. Based on his Independent Assessment of Hydrogeologic Effects Dan's Mountain Wind Force, LLC Project Allegany County, Maryland dated August 29, 2016,<sup>209</sup> Mr. Eisner concluded that there will be no change in groundwater availability to off-premises wells as a result of the Wind Project. Nor did he believe that the foundation excavation would result in any change to the groundwater flow. He also opined that Condition No. 25 had no scientific basis and may present significant risks of mistakes. He is concerned that the condition may result in the Applicant being liable for pre-existing conditions at the wells or be presumptively

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<sup>209</sup> Eisner Rebuttal, Exhibit 2.

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responsible for activities that may cause harm to the well not connected to the construction of the Wind Project.

In her surrebuttal, Ms. Dodds pointed out a number of inaccuracies in Mr. Keating's and Mr. Eisner's testimony. Based on these inaccuracies, Ms. Dodds testified that each of their analyses were faulty.

The nearby residential properties to the Wind Project depend on potable wells for their water supplies. As Ms. Stark observed, the "loss of well water to my residence ... could create an immediate emergency situation whereby my home would become unlivable until the well could be re-drilled, lowered or an alternate water supply ... become available."<sup>210</sup> Similar to the issue on the impact of the noise/infrasound/low frequency sound produced by the wind turbines on human health, I have a disagreement among the expert witnesses as to the potential impacts on groundwater flow that may disrupt or damage the potable water supply to nearby residential properties. The County's code addresses the potential impact of an IWECS on the groundwater flow on which the residential properties in the County may depend upon for their water supply. PPRP, in an abundance of caution, crafted its Recommended Licensing Condition, which addresses the potential risk to the potable water supply to nearby residential properties, but places a limit on which properties are protected.

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<sup>210</sup> Stark Direct at 7.



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Ms. Dobbs has presented sufficient reasons to support the PPRP Recommended Licensing Condition No. 25, which I find the Applicant has not rebutted. Consequently, I find that there is a scientific basis for the inclusion of Recommended Licensing Condition No. 25 as a condition to the CPCN. I find the County's WECS Ordinance that limits the protection to only those residential properties within a one-mile radius of any portion of the Wind Project to be reasonable. I conclude that the Applicant has more financial resources to dispute whether its Wind Project construction caused the harm or damage to a residential well; thus, the financial burden should not be placed on the residential property owner within a one-mile radius of the Wind Project to prove that the Applicant's activities were the cause of the damage or harm to its existing potable well supply. Accordingly, to mitigate the potential adverse impact to the water availability and quality of potable water supplies to residential properties, I accept PPRP final Recommended Licensing Condition No. 25.

**B. Stability and Reliability of the Electric System**

According to the Company, PJM Interconnection, LLC, the regional transmission organization ("PJM"), has evaluated the Wind Project for compliance with reliability criteria and potential

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network impact.<sup>211</sup> The Company represents that no potential network impacts were identified.<sup>212</sup>

In his testimony, Staff witness Wilson described the PJM process by which PJM reviewed and evaluated proposed generation that will connect to the regional transmission system, and described the purpose of the various studies conducted by PJM. Mr. Wilson stated that the required Impact Study and the Facility Study for the Project was completed by PJM in May 2013.<sup>213</sup> He said that the Facility Study detailed the interconnection and transmission network upgrade facilities and costs needed to ensure the interconnection by the Project with the transmission system is safe and reliable.<sup>214</sup> He noted that the Company will be responsible for payment of these costs.<sup>215</sup>

Mr. Wilson testified that the Company will be required to comply with The Potomac Edison Company's and PJM's interconnection requirements and to complete the required facility upgrades and milestones specified in the Interconnection Service Agreement ("ISA"),<sup>216</sup> which has been executed by the Company, PJM and The Potomac Edison Company.<sup>217</sup> Initially, Mr. Wilson recommended that the ISA, as approved by the Federal Energy Regulatory

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<sup>211</sup> Applicant ERD at 27.

<sup>212</sup> *Id.*

<sup>213</sup> Wilson Direct at 9.

<sup>214</sup> *Id.*

<sup>215</sup> *Id.*

<sup>216</sup> *Id.* at 11.

<sup>217</sup> Applicant ERD, Appendix A at 0134-0225.

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Commission, be required as a condition of any issuance of a CPCN and a copy of the FERC-approved ISA should be filed with the Commission prior to the Company beginning construction of the Wind Project.<sup>218</sup> In his surrebuttal testimony, he revised his recommended condition to require the Company file the Project's Interconnection Agreement with The Potomac Edison Company with the Commission prior to beginning construction of the Wind Project.<sup>219</sup> Further, he determined that the Company's compliance with the ISA will assure no adverse impact on the reliability or stability of the electric transmission system will occur.<sup>220</sup>

Mr. Wilson recommends that the Company be granted a CPCN for its Wind Project, subject to the PPRP recommended licensing conditions as well as certain Staff recommended licensing conditions, including his recommendation of the filing of the Interconnection Agreement as set forth above. He also recommends that the Company (or its successors or assigns) be directed to:

Provide a 60-day written notice to the Commission of any non-wholesale electricity sale to a Maryland retail electric customer and comply with all regulations regarding such sale including obtaining any requisite Interconnection Agreement(s) to deliver electricity into the respective distribution systems of Maryland electric companies such as Potomac Edison Company; and

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<sup>218</sup> Wilson Direct at 11.

<sup>219</sup> Wilson Surrebuttal at 1.

<sup>220</sup> Wilson Direct at 11.

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Provide written notice of any change in ownership of all, or any portion of the Project, at least 30 days prior to the closing date of any sale to a third party. The written notice should include, but not be limited to the identity of the third party, contact information by which the new and current owner may receive any Commission inquiries, the proposed effective date of any change in ownership, and documentation that demonstrates the capability of the prospective owner to operate and maintain the Project and to perform in accordance with the conditions of any CPCN issued in this proceeding.<sup>221</sup>

I find sufficient evidence to find that the Wind Project, as currently proposed and studied by PJM, will have no adverse impact on the stability and reliability of the electric system. As the Company has not opposed Staff's conditions, I accept the conditions without modification and any CPCN issued in this proceeding shall be subject to Staff's recommended licensing conditions.

**C. Economics**

**1. Parties' Positions**

**a. Company's Position**

The Company represents that the Wind Project will benefit the State's economy as a result of the \$90 million of capital expenditures by the Applicant to develop and construct the Project as well as the 150,000 hours of employment the Project will

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<sup>221</sup> *Id.* at 13.

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create.<sup>222</sup> It also claims that local businesses will accrue additional economic benefits throughout the Project's lifetime as the Applicant will use products and services of the local businesses, including infrastructure maintenance service, industrial supplies and hospitality service.<sup>223</sup> The Applicant further represents that at the time of decommissioning of the Project additional economic benefits will flow to the local and State economies.<sup>224</sup> The Company also notes that the Project will contribute to the overall compliance with the State's Renewable Portfolio Standard ("RPS"), which will reduce the State's reliance on imported energy.<sup>225</sup> It also asserts that the Project will not detract from the value or diminish the characteristics of adjacent property.<sup>226</sup>

Applicant witness Friend, in his rebuttal testimony, asserted that the property taxes associated with the Project, over the first 20 years of operation, are expected to average approximately \$760,000 per year, based on the Project's cost of \$95 million.<sup>227</sup>

In rebuttal testimony, Applicant witness Mangum presented his report, "The Economic and Fiscal Contribution that

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<sup>222</sup> Applicant ERD at 5.

<sup>223</sup> Id.

<sup>224</sup> Id.

<sup>225</sup> Id. at 26-27.

<sup>226</sup> Id.

<sup>227</sup> Friend Rebuttal at 11.

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the Dan's Mountain Wind Project would make to Allegany County and Maryland."<sup>228</sup> According to Dr. Mangum, his analysis demonstrates that the Project will have a positive impact on the County's construction industry, aid in mitigating the County's pronounced seasonal swings in employment, and overall make a positive economic and fiscal contribution to the County and the State as a whole.<sup>229</sup> He also opines that the Wind Project will have a very small impact on the County's tourism industry.<sup>230</sup>

Although Dr. Mangum did not perform any analysis of property value impacts specific to the Project, he did conduct a review of the existing empirical literature on the topic. He testified that he found 10 studies on the effect of wind turbines on property value once the turbines were constructed; six found no statistically significant<sup>231</sup> effect of wind turbines on property values and four studies found a statistically negative effect. He then discussed studies conducted of wind projects near the proposed Wind Project location, which he felt were probably more instructive.<sup>232</sup> In each of those three studies identified, he said the researchers were unable to discern any statistically meaningful effect on property value.<sup>233</sup>

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<sup>228</sup> Mangum Rebuttal at 1 and attached Ex. AFM-2.

<sup>229</sup> *Id.* at 2.

<sup>230</sup> *Id.*

<sup>231</sup> *Id.* at 3.

<sup>232</sup> *Id.*

<sup>233</sup> *Id.* at 3-4.

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**b. PPRP's Position**

PPRP witness Hall developed the portion of the PPRP ERD evaluating socioeconomic impacts associated with the Wind Project. PPRP estimated, based on the Jobs and Economic Development Impact model, that the Company's creation of 150 direct design, management and construction jobs over an approximate nine-month period may generate 160 total full-time equivalent direct, indirect and induced jobs in the State.<sup>234</sup> It further estimated that, based on the capital cost of the Project, the Project could generate more than \$15 million in direct, indirect and induced earnings throughout Maryland.<sup>235</sup> PPRP noted that not all the economic benefits will accrue to Maryland because the Project will use specialized components that are manufactured elsewhere and will be transported into the State.<sup>236</sup> PPRP determined that the County, the State, and, to a lesser extent, surrounding jurisdictions will experience fiscal benefits from taxes on construction worker wages, consumption expenditures and supplier sales receipts.<sup>237</sup> It determined that, with public service levels largely unaffected, the net fiscal benefit of the Wind Project will be positive for the County and the State.<sup>238</sup>

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<sup>234</sup> PPRP ERD at 23.

<sup>235</sup> *Id.*

<sup>236</sup> *Id.*

<sup>237</sup> *Id.*

<sup>238</sup> *Id.*

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PPRP addressed the income tax and personal property tax revenues that may accrue to the State and the County. It estimated that business personal property taxes from the Project could be approximately \$700,000 in the first year of operations, declining to about \$250,000 in Year 20, depending on the final design and equipment specification.<sup>239</sup>

PPRP's ERD also addressed the impact of wind projects on property values, which Ms. Stark argues will create an economic loss to those residents living within two miles of the Wind Project. PPRP concluded that "[t]o the extent they occur, property value impacts are expected to affect residential properties that experience near views of the project."<sup>240</sup> PPRP noted that the Summit at Harwood subdivision would be the closest residential community to the wind turbines. Based on anecdotal evidence, PPRP concluded that, as the Harwood subdivision was developed and marketed during the conception and initial permitting of the Project, nearby real estate transactions have incorporated any price effects that might be attributable to the facility.<sup>241</sup> PPRP also discussed its independent analysis of property value impacts for nearby wind farms in Garrett County (adjacent to Allegany County). Its analyses failed to reflect a relationship between property value impacts and property proximity to wind farms.<sup>242</sup>

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<sup>239</sup> *Id.* at 24.

<sup>240</sup> *Id.* at 41.

<sup>241</sup> *Id.* at 42.

<sup>242</sup> *Id.* at 42-43.

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In his surrebuttal testimony, Dr. Hall addressed Ms. Stark's conclusion that residential home and property values will diminish significantly once the Wind Project is constructed and operational. Dr. Hall noted that Ms. Stark's conclusion was based on "a critique by a qualified real estate appraiser of the statistical methods used in the [Applicant's submitted] study."<sup>243</sup> Dr. Hall did not dispute that "hedonic price models have shortcomings related to model specification, data quality and interpretation," but he explained the shortcomings of appraiser studies, including the appraisal techniques that "are largely dependent on the appraiser's expert judgment in locating and refining a set of comparable sales for analytical purposes, a problem of particular concern in rural areas where there are fewer sales and comparable units."<sup>244</sup> He concluded, based on "the attached table (Appendix B) from one review of the literature shows (footnote omitted), neither appraisal nor econometric approaches have been able to reach a consensus on the issue."<sup>245</sup>

**c. Pro Se Parties' Position**

Ms. Stark disagrees with the Applicant's and PPRP's conclusions that the Wind Project will have no adverse impact on the value of her residential property. Ms. Stark claimed that at

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<sup>243</sup> Hall Surrebuttal at 12.

<sup>244</sup> *Id.* at 14 (footnote omitted).

<sup>245</sup> *Id.*

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the time she and her husband bought their property in Summit at Harwood subdivision in late fall of 2008, they were unaware of the proposal by the Applicant to construct the Wind Project even though they directly asked the real estate professional involved in the transaction whether any nuisances, existing or planned, were near the property.<sup>246</sup> Ms. Stark takes exception to the Applicant's submitted study on impact of property value because of the lack of a specific study on property values for homes less than two miles from the turbine location.<sup>247</sup> She then discussed the weaknesses of the Applicant's reliance on studies on impacts on property value by wind projects conducted by the U.S. Department of Energy's Lawrence Berkeley National Laboratory ("LBNL").<sup>248</sup> She based her critique on a study conducted by Albert Wilson, a professional real estate appraiser, and a letter from McCann Appraisal, LLC criticizing the LBNL study and referencing a study conducted by McCann Appraisal, LLC, associated with the Mendota Hills wind farm, Twin Groves, and other wind farm projects on various dates beginning in 2005.<sup>249</sup>

To mitigate the potential risk of a decline in property value to her home, Ms. Stark recommended that the Commission require the Applicant to execute a Property Value Guarantee

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<sup>246</sup> Stark Direct at 8.

<sup>247</sup> Id. at 9.

<sup>248</sup> See PPRP ERD, Exhibit 14, Applicant's response to PPRP's Data Request 2-6.

<sup>249</sup> Id. at 10, and attached Exhibits 8 and 9.

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Agreement with her and other homeowners within two miles of the Wind Project.<sup>250</sup> She submitted examples of a form of guarantees she located through an Internet search.<sup>251</sup> Ms. Stark explained that, with the Property Value Guarantee, the homeowner is compensated for the loss of any value to the property if the amount received as a result of the sale of the property is determined to be less than the value that would have been received prior to the construction and operation of the wind turbine.<sup>252</sup> She argued that, if the Applicant is correct that its Wind Project will have no adverse impact on the property value of her home, the Applicant has no reason to decline to enter into the guarantee as it would not have to pay for a reduction in the value of the property at the time of sale.<sup>253</sup>

## 2. Discussion and Findings

As with many of the renewable energy projects for which a CPCN is required, the greatest positive impact on employment within the County of the Wind Project is temporary and for a very limited time period (approximately nine months for this Project). Although, as PPRP points out, there may be a benefit to the local economy due to the need for certain ongoing services and products after the Wind Project is operational, the benefit is very slight.

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<sup>250</sup> *Id.* at 12.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.*

<sup>253</sup> *Id.* at 13.



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Certainly, the Wind Project will result in an increase in the income tax and property tax received due to the Project's construction and operation, but the benefit declines over time. Based on the evidence in the record, I find that the Wind Project may result in a slight net positive economic benefit to the County and the State.

Of particular concern to the pro se parties is the risk of the economic loss that current property owners may experience as the proximity to the Wind Project may result in a decrease in the value of their property. The evidence in the record to support the positions that the property value will not decline or will decline based on proximity to a wind project is based on various studies, some peer-reviewed and some not. I conclude that each study relied upon by the applicable Party in support of its position has its own shortcoming. I note that, in his article, Mr. Wilson takes no position on the influence of wind farms on residential sales prices.<sup>254</sup> In the McCann Appraisal, LLC letter, although Mr. McCann references his "Mendota Hills data I cited to you and the 25% value loss indicated," the actual Mendota Hills data is not attached to the letter. Rather the attachment includes a footnote reference to the Mendota Hills data and "as supported by Poor View Vista, Report figure ES-2," but neither the underlying Mendota data nor the Poor View Vista figure is included in Exhibit 9.<sup>255</sup>

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<sup>254</sup> Stark Direct, Exhibit 9 at 1, 6.

<sup>255</sup> *Id.*

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Without the underlying data to more fully understand Mr. McCann's criticism of the LBNL study, which supports Applicant's position, and the data on which he relied upon to conduct his study, I have no means to determine how the a 25% loss in value for homes in the "footprint" of a wind farm or a 5% value loss for homes within a one mile radius of the wind farm may be relevant or applicable to this Wind Project. Thus, I am unable to give any weight to Mr. McCann's reference to the results of his Mendota Hills study. Consequently, although Ms. Stark's evidence calls into question the results of the Applicant's supporting study, the documents on which she relies do not establish that the construction of the Wind Project will be the sole negative influence on the future value of her property or other nearby residential properties. Consequently, I decline to include a condition to the CPCN that directs the Company to enter into a Property Value Guarantee Agreement with non-participating property owners in the proximity of the Wind Project. Further, I find no evidence to quantify the sole influence that the Wind Project may have on the future property values of homes near the Wind Project.

Although there is a claim that the Wind Project will be detrimental to tourism which may adversely affect the local economy, I find insufficient data in the record to support the claim. In Dr. Mangum's analysis, he concluded that the tourism industry would not be negatively affected. Consequently, the evidence is not sufficient to support a finding that the Wind

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Project will be a negative influence on the tourist industry in the County.

Therefore, overall, I find that the Wind Project will produce a slight net economic benefit to the County and the State.

**D. Esthetics**

**1. Parties' Positions**

**a. Company's Position**

According to Applicant witness Haraminac, the visual impacts associated with the Project are expected to be minimal.<sup>256</sup> Based on a Visual Impact Assessment conducted in 2015, Ms. Haraminac stated that the study reflected the turbines will not be visible in and around the Project site because of the screening effects associated with topography and vegetation.<sup>257</sup> From distant viewpoints, Ms. Haraminac represented that the turbines will appear small and be a minor additional element in the landscape.<sup>258</sup>

Applicant witness Davis addressed the suitability of the Project site from a land use perspective. According to Mr. Davis, there are a number of existing uses that are significant from a land development or land disturbance standpoint, including a landfill to the west and down the hill from the Project site, an active surface mine, visible from Route 36, an old surface mine, now a gravel

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<sup>256</sup> Haraminac Direct at 8.

<sup>257</sup> *Id.*

<sup>258</sup> *Id.*

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parking lot, immediately to the north, and a cell tower cluster immediately to the south.<sup>259</sup> Mr. Friend testified that "[a]esthetics and visual mitigation are obviously subjective in nature."<sup>260</sup> He considered the PPRP Condition No. 24, which would require the Applicant to conduct visual assessments and photo simulations from 31 properties, collect comments and negotiate mitigation plans with these owners, to "be expensive and burdensome to implement for little or no benefit to anyone."<sup>261</sup> At the hearing, Mr. Friend testified that the "the machines are big and they're visible from some distance,"<sup>262</sup> and the Applicant is "not able to mitigate the view from some of the homes."<sup>263</sup>

**b. PPRP's Position**

PPRP conducted a visual impact assessment using a viewshed analysis using GIS software, and explained how it accounted for vegetation and how distance along with atmospheric conditions affect visibility.<sup>264</sup> Based on certain models or prior studies, PPRP limited its visibility assessment to a five-mile area around the Project site, with one-mile buffer areas reflected.<sup>265</sup> It noted the various limitations of its viewshed analysis, but

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<sup>259</sup> Davis Rebuttal at 3.

<sup>260</sup> Friend Rebuttal at 22.

<sup>261</sup> *Id.*

<sup>262</sup> Transcript at 71.

<sup>263</sup> *Id.*

<sup>264</sup> PPRP ERD at 32-33.

<sup>265</sup> *Id.*



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concluded that its estimates are consistent with the analysis conducted by the Applicant.<sup>266</sup> It determined that "most views will be limited to Dan's Mountain and the valleys that surround it, and will be 'far' views where turbines are recognized on the horizon but do not predominate one's field of vision."<sup>267</sup> It also noted that the communications towers currently constructed on Dan's Mountain compromise views toward the Project from some directions.<sup>268</sup>

PPRP observed that the turbines may be visible to individuals living in the Summit at Harwood subdivision, and the Applicant's photo simulation (Figure 5) suggests that the turbines would "dominate views to the south [from the subdivision]...."<sup>269</sup> It, however, was not certain to the degree that the Project would have a visual impact upon the viewers in the area. Consequently, because of PPRP's concern about the visual impact on "the viewers with permanent views of the project," PPRP created a list of 31 residential non-participating properties within a one-mile radius of the Project site. Further, PPRP made the "assumption that scenic attributes were likely a factor in the location decisions of owner-occupied, single-family property owners" and concluded that "visual impacts are more likely to be experienced by this subset of property owners than others."<sup>270</sup> PPRP could not

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<sup>266</sup> *Id.* at 34.

<sup>267</sup> *Id.* (footnote omitted).

<sup>268</sup> *Id.* at 36.

<sup>269</sup> *Id.*; Hall Direct at 9.

<sup>270</sup> PPRP ERD at 38; Hall Direct at 9.

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determine which, if any, of these property owners may be subjected to a permanent visual impact.<sup>271</sup> Thus, it could not conclude that the Wind Project would have no adverse impact to certain properties' viewshed. It determined that further analysis needed to be conducted by the Applicant as to the 31 owner-occupied properties PPRP identified within a one-mile radius of the Wind Project.<sup>272</sup> It therefore recommended Licensing Condition No. 24, as amended.

PPRP determined that the visual impacts from the Project "are not expected to invoke strong negative reactions from visitors to the area or affect the area's recreational amenities" because of the Project's distances from most recreational views.<sup>273</sup> PPRP also noted that there may be visual impacts due to light trespass, but is unable to know the full extent of the impact as the lighting requirements have not been specified by the FAA.<sup>274</sup>

In surrebuttal testimony, Ms. Gray maintained that Condition No. 24 was appropriate "in recognition of the fact that intervenors and members of the public have voiced significant concern about the visibility of wind turbines for nearby residents, and the associated impacts to visual enjoyment, quality of life,

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<sup>271</sup> Hall Direct at 9-10.

<sup>272</sup> *Id.*

<sup>273</sup> *Id.* at 40.

<sup>274</sup> *Id.*; Hall Direct at 10.

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and property values."<sup>275</sup> She noted that "the Project will present a significant, near view of large turbine structures."

**c. Pro Se Parties' Position**

Ms. Baker testified that Mr. Friend contacted her in April 2016, and offered a Good Neighbor Agreement to the Bakers because their "home and property would definitely be impacted from the project," according to Mr. Friend. She stated that the home will be approximately 2,000 feet from turbine number one, and the property line approximately 500 feet from the turbine. Additionally, she said that three other turbines would be in close proximity to her home. Ms. Stark provided two photographs showing the view from the rear of Ms. Baker's home towards the location of turbine number one and the other turbines that will be visible from Ms. Baker's home.<sup>276</sup>

Mr. and Mrs. Park also expressed concern about the visual impact of the turbines on the vistas of Dan's Mountain. They included three photos in their joint surrebuttal testimony of homes near the turbines near the Fourmile Ridge Wind Project. Ms. Stark is concerned with the decrease in property value due to the noise of the turbines, but she acknowledged that from her property the turbines would not be visible.<sup>277</sup>

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<sup>275</sup> Gray Surrebuttal at 6.

<sup>276</sup> Stark Surrebuttal, Exhibit 1.

<sup>277</sup> Transcript at 541.



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**2. Discussion and Findings**

Although the view from the Project site cannot be described as "pristine," in that it has a cluster of communications towers to its south and a landfill and an active surface mine located nearby, the negative visual impact on the subdivisions surrounding Dan's Mountain are limited. The landfill and surface mine has little visibility to a large number of viewers due to the vegetation and topography of the areas. Even though the communications towers may mar the view of some residential property of Dan's Mountain, the communications towers may be considered beneficial to the community and therefore the negative influence on the Dan's Mountain vista is tolerated or is otherwise acceptable. As Benjamin Franklin noted, "Beauty, like supreme dominion, is but supported by opinion."<sup>278</sup>

The view of the turbines, unlike solar panels associated with an industrial-size solar farm or even a natural gas-fueled generating facility, cannot be mitigated by constructing a landscape buffer around each turbine to reduce the visibility of the turbines from nearby or distant viewers. The installation of the 17 turbines will change the existing vista of Dan's Mountain - some may find the far view of the turbines acceptable, and others may not. The Applicant asserts that, despite the visibility of the turbines from a number of communities, the views are at a distance; therefore, it concludes there is minimal adverse impact to the

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<sup>278</sup> *Poor Richard's Almanack* 1941.

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esthetics of the areas surrounding the Wind Project. For certain owner-occupied properties, like Mrs. Baker's, the view that she currently enjoys from the back of her house, will include a near view of the "large machines" and for which "no mitigation is available." The turbines therefore will be visible in the day and the red light highly visible after dark.<sup>279</sup> I conclude that the alteration in Mrs. Baker's view is not a "minimal adverse impact."

The Applicant argues that all of the owners in the Summit at Harwood had constructive knowledge of the Applicant's intent to construct the Wind Project prior to buying the land or purchasing a home in the subdivision. According to Mr. Friend, the Project has been in development since 2001. The Applicant, however, provided no physical evidence, such as newspaper articles or other documentation, to support its position that there was sufficient publicly circulated information about the development of the Wind Project during 2001 and the date on which it filed its CPCN Exemption Application to place individuals interested in acquiring property in the subdivision on notice. Further, Mrs. Baker stated that she and her husband bought the land in the subdivision "approximately three years" before they moved into the house in 2010.<sup>280</sup> Ms. Stark, who bought her home in November 2008,

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<sup>279</sup> Mrs. Park testified that her home has a distant view of a ridge of wind turbines in Garrett County, and she is able to plainly see the blinking red lights every night and that they are very distracting. Transcript at 562-563.

<sup>280</sup> Transcript at 168. (Mrs. Baker noted that her husband constructed the home.)

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also was unaware of the planned project, despite asking her real estate professional if any "nuisance" projects were planned in the area.<sup>281</sup> I am not persuaded by the Applicant's argument that I should accord little or no weight of the significant visual impact to Mrs. Baker's property caused by the Wind Project (and potentially a number of other residential properties within a one-mile radius of the Wind Project). I find nothing in the record to reflect that there was sufficient publicity surrounding the development of the Wind Project between 2001 through the end of 2008 to give constructive notice to those individuals considering acquiring property in the Harwood subdivision.

Based on the Applicant's and PPRP's viewshed analysis, I find that the far views of the Wind Project result in an unavoidable adverse impact, but the impact is slight. The Applicant, however, has failed to present sufficient evidence to the extent or level of impact on the near views of the turbines that are not shielded by vegetation or topography, even though its Viewshed Analysis shows that there are areas within a one-mile radius that will have views of multiple turbines. PPRP also determined that the Applicant's analysis was inconclusive as to the extent of the visual impact on certain properties and whether any mitigation existed due to vegetation or topography.

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<sup>281</sup> Mrs. Stark testified that she and her husband were residing in Arizona when they relocated to the County for work-related purposes.

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PPRP has offered a recommended licensing condition that identifies 31 owner-occupied properties within a one-mile radius that the Applicant must provide, if requested, the photo simulations of the views and any feasible means to mitigate the view. In determining which non-participating properties should be included, PPRP made the assumption that the viewshed enjoyed by these owner-occupied properties was one of the primary reasons for the owner acquiring the residence. PPRP, however, identified 60+ properties within a one-mile radius, some of which are non-participating and non-owner-occupied. I conclude that even seasonal or part-time residents will have a permanent adverse impact on their views and the Applicant has the obligation to report to the Commission the extent of the impact on these views and possible mitigation. Further, my concern is that PPRP's recommended licensing condition presumes that these unavoidable adverse impacts to one or more residential properties is only given singular weight, as opposed to cumulative weight, in the Commission's consideration of the Wind Project's impact on the esthetics of the areas surrounding Dan's Mountain.

Although not comprehensive, the Applicant generated several photo simulations of various areas within the Wind Project's viewshed to evidence the potential visual impact of the Project on these areas. Viewpoint 7 was from a "southwest view from a local road approximately 0.7 miles from the closest visible

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turbine. There is one home beyond this point on the road."<sup>282</sup>  
Based on the record, I conclude the home beyond the point the photo simulation was conducted is that of Mrs. Baker. Mrs. Stark also provided two photographs taken from Mrs. Baker's deck looking toward the location of the proposed Wind Project. In one of the photographs, the wind test tower is slightly visible in the view; otherwise, both views are unobstructed by man-made elements. According to Mrs. Stark, Turbine No. 1 will be located at this point.

In the Viewpoint 7 photo simulation, two of the turbines are clearly visible, but the simulation does not include any views toward Turbines Nos. 1 - 4, of which at least one of these turbines will be less than 0.7 miles from Mrs. Baker's residence. The Applicant's Viewshed Analysis concludes that "[i]n the simulations from Dan's Rock and Summit Harwood, turbines are located less than one mile from view, and will appear as larger elements in the landscape, although views will still be influenced by vegetation and human-built elements such as roads and communication towers."<sup>283</sup> Perhaps for some of those residents in the Summit at Harwood subdivision, such as Mrs. Stark, vegetation and human-built elements may block or mitigate the view of the nearby turbines, but I find no such influences that will mitigate the "near view" of the turbines from Mrs. Baker's home.

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<sup>282</sup> Appl. ERD at 1451.

<sup>283</sup> Id. at 1452.

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The Applicant has known about the concerns of the owner-occupied properties, such as expressed by Mrs. Baker, as to the visual impacts that might occur for a substantial period of time. Its failure to document or demonstrate the expected near-view visual impacts on the non-participating properties is astounding, especially as its Viewshed Analysis conducted in 2015 reveals a number of pockets of areas within a one-mile radius of the Wind Project that may have views of one or more turbines. I further determine that it is the cumulative adverse impact on the non-participating properties' near views that must be considered in weighing whether overall the Wind Project will have a "minimal" or "significant" impact on the local area's esthetics. Thus, I find that the Applicant has failed to meet its burden of proof that the Wind Project will have either no adverse impact or a minimal adverse impact on the esthetics of the areas surrounding the Project. There is sufficient evidence to find that Mrs. Baker's view of Dan's Mountain will be altered from one of a near view that is unobstructed by man-made elements to one with at least four industrial machines clearly visible without mitigation from vegetation or other human-made elements. Consequently, I find that the Wind Project will have more than a minimal adverse impact on the esthetics of the local communities surrounding Dan's Mountain. Further, I find that PPRP final recommended Licensing Condition No. 25 does not mitigate the potential adverse impact.

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**E. Historic Sites - Cultural Resources**

**1. Parties' Positions**

**a. Applicant's Position**

According to the Applicant's ERD, the Applicant began coordination with the Maryland Historical Trust ("MHT") in 2005, and engaged a consultant to conduct an assessment of historical resources for the Project.<sup>284</sup> The Applicant asserts that the Project site does not contain previously identified archeological resources as identified in the Maryland archeological site files or the Maryland Inventory of Historic Properties ("MIHP") file maintained by the MHT. As of September 2007, it identified 405 previously identified built resources with MIHP numbers within five miles of the Project site.<sup>285</sup> It stated that seven of the properties are listed in the National Register of Historic Places ("NRHP"), but none of the properties are located within 2.5 miles of the Project site.<sup>286</sup> As a result of correspondence with the MHT, the Applicant's consultant conducted a Phase 2 site investigation and archival research on 11 properties identified by MHT for NRHP evaluation.<sup>287</sup> Of the 11 properties evaluated, only the Matthews Brick Farmhouse was evaluated as possessing significance under National Register Criterion C for listing in the NRHP.<sup>288</sup> Pursuant

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<sup>284</sup> Appl. ERD at 1373.

<sup>285</sup> Id. at 0053.

<sup>286</sup> Id.

<sup>287</sup> Id. at 0053-0054.

<sup>288</sup> Id.

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to a letter dated January 7, 2009, the MHT determined "[a]fter reviewing the line of sight profiles for the wind turbines proposed within half a mile of the Matthews Brick Farmhouse, the Trust agrees that there will be no adverse effect on the historic property because of the intervening trees and topography."<sup>289</sup>

By letter dated July 23, 2014, Mr. Friend, on behalf of Laurel Renewable Partners, LLC ("Laurel"), notified the MHT that Laurel had acquired ownership of the Applicant and noted that the number of turbines for the Wind Project was reduced from 29 to approximately 20 structures and the overall turbine height increased from 420 feet to 492 feet.<sup>290</sup> By letter dated July 24, 2015, R. Christopher Goodwin & Associates, Inc. advised the Applicant that the consultant had conducted a further search of the National Register listings for historic properties within 5,000 feet of the locations of the turbine towers shown in the 2015 project plan.<sup>291</sup> Based on this search, the consultant found no listed properties within 5,000 feet of any proposed turbine.<sup>292</sup>

The Applicant also indicated that it will prepare and implement an Unanticipated Discovery Plan that addresses the steps that will be taken if archeological resources or human remains are unexpectedly encountered during the Project's construction. With

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<sup>289</sup> Applicant ERD, Appendix K.

<sup>290</sup> Appl. ERD at 1685.

<sup>291</sup> *Id.* at 1677.

<sup>292</sup> *Id.*



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the implementation of this Plan, the Applicant asserts that no impacts to cultural or archeological resources are anticipated.

**b. PPRP's Position**

PPRP agrees with the Applicant's assessment that there are no listed NRHP properties within one mile of any of the proposed wind turbines. It states that several NRHP properties and MIHP properties outside the one-mile buffer zone may have potential views of one or more of the turbines, but as the views are distant, PPRP concludes there is no adverse effect on these properties' historical integrity or purpose.<sup>293</sup> Although both the PPRP ERD and Dr. Hall, in his direct testimony, noted that the MHT has not completed its review of the project design and indicated PPRP was recommending a condition to ensure that any mitigation of possible adverse impact was negotiation and agreed upon by MHT, no condition was contained in the Initial Recommended License Conditions. Further, PPRP recommended Condition No. 21 (which was reflected as No. 20 in the Initial Recommended License Conditions) to require the Applicant to consult with MHT in the event that any relics or unforeseen archeological sites are revealed during construction, and develop and implement a plan as to how to proceed and protect the relics or sites.<sup>294</sup>

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<sup>293</sup> Hall Direct at 11; PPRP ERD at 48.

<sup>294</sup> Id.

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Further, PPRP determined that the Project site was not within any Certified Heritage Area in Maryland, and would not affect them.<sup>295</sup> Further, it stated that no Maryland Scenic Byways are near the Project. Further, it represented that the Project's construction and operation would not adversely affect cyclists that may use the Maryland designated on-road bicycle routes on MD36 and MD55.<sup>296</sup>

**c. Pro Se Parties' Position**

In her reply brief, Ms. Stark argues that the Wind Project will have an adverse impact on Dan's Rock, which is identified as a cultural resource in the PPRP ERD. She asserts that, despite the cluster of telecommunications towers located near Dan's Rock, the site is "a peaceful place where tourists stand to view and relax, to appreciate the absolute beauty of the landscape,"<sup>297</sup> and the peacefulness of the site will be shattered by the sound of the turbines located within 1000 feet of the Rock's location. Further, she said that while tourists may be able to enjoy 180 degrees of vista, their views to the ridgelines to the north and north east of the outlook will be disrupted by visibility of the Wind Project.

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<sup>295</sup> PPRP ERD at 51.

<sup>296</sup> *Id.*

<sup>297</sup> Stark Reply Brief at 12.

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**2. Discussion and Findings**

In 2009, MHT found that the visibility of the turbines from the Mr. Allen's farmhouse, a property eligible for NRHP status within a one-mile radius of the Project, would not negatively impact the historic nature of the farmhouse because of the intervening trees and topography. I, however, find no evidence in the record that, after it re-designed its Project to reduce the number of turbines to 17 and increased the overall height to the turbines, the Applicant gave MHT any additional information to confirm that its conclusion that the line of sight profiles for the Matthew Brick Farmhouse will result in no adverse impact on the historical nature of the farmhouse remained unchanged. The photo of the farmhouse in the Applicant's ERD<sup>298</sup> is taken in a manner that it is unclear as to what view the farmhouse has towards the Wind Project's location.

Viewpoint 2a in the Applicant's Viewshed Analysis<sup>299</sup> depicts the view from Dan's Mountain looking north from Dan's Rock. Currently, there is a near view of two communication towers; under the photo simulations, the view will include views of multiple turbines but at a distance. Viewpoint 2b, the view to the northeast from Dan's Rock, does not appear impeded by a view of any turbines. Thus, I conclude that there is only a slight adverse impact on the vistas from Dan's Rock. As to the noise, there is

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<sup>298</sup> Appl. ERD at 1533, Figure C-21, and 1592.

<sup>299</sup> Appl. ERD at 1457.

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not sufficient data to determine that the noise will be at level to adversely impact the use of Dan's Rock by tourists or other visitors.

Except to the extent MHT has not reviewed the re-design of the Wind Project and re-affirmed its conclusion of no adverse impacts to historic sites, I concur with the PPRP's conclusions that there is no adverse impact on historic sites or cultural resources around the Wind Project. I, however, would include a condition to require the Applicant to obtain confirmation from MHT that MHT's conclusion from 2009 remains the same in light of the redesign of the project. If MHT determines that there is a significant adverse impact on an historic site, then the Applicant is required to negotiate and obtain agreement from MHT for any mitigation to the adverse impact, reduce the agreement to a Memorandum of Agreement executed by the Applicant and MHT, and submit a copy of the executed agreement to PPRP and the Commission.

**F. Aviation Safety**

As an exhibit to his rebuttal testimony, Mr. Friend submitted the Determination of No Hazard to Air Navigation for each of the 17 turbines dated April 29, 2016 from the Federal Aviation Administration ("FAA").<sup>300</sup> Mr. Friend explained that in March 2016, the FAA made an initial finding that certain of the turbines might exceed obstruction standards and/or might have an adverse physical

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<sup>300</sup> Friend Rebuttal, Exhibit 1.

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or electromagnetic interference effect upon navigable airspace or air navigation facilities, which then required the FAA to conduct a more thorough analysis.<sup>301</sup> Once the FAA completed its further investigation, it issued the April 29th Determinations.

PPRP recommends that the Applicant comply with the Determination of No Hazard dated April 29, 2016 as set forth in final Recommended Licensing Condition No. 22.

Mr. Kight, who testified on behalf of the pro se parties, expressed his concern as to aviation safety of planes flying in and out of the Greater Cumberland Regional Airport. He explained that as no red lights were on the tips of the turbine, a pilot who was not familiar with the approach to the Airport, may see the lights on the top of the turbine's hub, but may not understand that he/she must also avoid the longer blade tip. Mr. Kight cited the March 2016 determinations to support his concerns.

In light of the FAA's April 29, 2016 determination that none of the proposed wind turbines will have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and will not be a hazard to air navigation, I find that the Wind Project, as proposed and subject to PPRP Condition No. 22, will have no adverse impact on aviation safety.

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<sup>301</sup> Friend Rebuttal at 10.

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**G. Air or Water Pollution**

**1. Air Pollution**

The Company asserts that the Wind Project will not emit any pollutants, and therefore it will be in compliance with federal and State air quality standards.<sup>302</sup> During construction, it acknowledged that the primary air quality issue will be dust created by non-point sources, such as earthwork and construction traffic on unpaved roads.<sup>303</sup> If necessary, the Company will minimize the impacts from the fugitive dust by implementing dust control measures, such as watering or applying chemical stabilizer to the road.<sup>304</sup> Additionally, the other potential sources of pollutants during construction are mobile internal combustion engines from earthwork equipment and increased vehicular traffic by work trucks.<sup>305</sup> The Company represents that these sources will be short in duration and will have little impact on air quality.<sup>306</sup>

No Party presented evidence or argument in opposition to the Company's position on the effect on air pollution. Accordingly, subject to the applicable recommended PPRP licensing conditions, I find that the Wind Project will have no permanent adverse impact on air quality.

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<sup>302</sup> Applicant ERD at 49.

<sup>303</sup> *Id.*

<sup>304</sup> *Id.*

<sup>305</sup> *Id.*

<sup>306</sup> *Id.*

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2. Water Pollution<sup>307</sup>

In its ERD, the Applicant concluded the Project will have no impact on streams and wetlands subject to its implementation of its erosion and sediment control plan during construction of the Wind Project.<sup>308</sup>

PPRP, subject to certain recommended Licensing Conditions, did not dispute the Applicant's conclusions.

*Pro se* parties' witness Dodds disputed the Applicant's assertions that the Project will have no impact on water and watershed quality. She indicated that due to the increased Stormwater discharge to streams caused by the construction of the Wind Project, downstream stream bank erosion could result from the increased water quantities and velocities within the streams and this would introduce sediment into the streams. She opined that the waterflow resulting from the increase in impervious surface would increase and the erosion of the stream banks would occur increasing the sediment in the water.

The Applicant's and PPRP's experts did not agree with Ms. Dodds' conclusion because they disputed (a) the increase in waterflow due to the slight increase in impervious surfaces and (b) due to the erosion and sediment controls that would be required during and after construction of the Project. Mr. Keating also

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<sup>307</sup> The issue of the impact of the Wind Project on the potable water supply of surrounding properties was addressed previously; this subsection considers the impact on the water quality of streams and wetlands from the construction and operation of the Wind Project.

<sup>308</sup> Appl. ERD at 44, Appendix B.

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stated that the regulatory requirements for implementation of erosion and sediment controls and storm management controls are sufficient to mitigate any adverse impacts from runoffs to streams, which will prevent soil erosion and sediment transport, pollution and adverse impacts on waterways and properties.<sup>309</sup>

In weighing the testimony of the witnesses, I conclude that disbursement of stormwater from the increased impervious surface may adversely impact the water quality of nearby streams if erosion of the banks should occur. I further determine that the Applicant's implementation of the necessary and required erosion and sediment controls will mitigate the potential temporary and permanent impact to nearby streams and wetlands. Subject to PPRP final Recommended Licensing Condition Nos. 2, 11, and 12, I find that the Wind Project will have no adverse impact on water quality or increase water pollution of streams and wetlands near the Project.

**H. Availability of Means for the Required Disposal of Wastes**

The Company does not anticipate large amounts of waste being generated during construction nor during operation of the Wind Project.<sup>310</sup> Any waste materials generated will be removed from the site and disposed of at an approved waste handling facility.<sup>311</sup>

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<sup>309</sup> Keating Rebuttal at 5-6.

<sup>310</sup> Applicant ERD at 52-53.

<sup>311</sup> Id.

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No sanitary sewer waste will be generated at the site.<sup>312</sup> During construction, portable restroom facilities will be provided for construction workers.<sup>313</sup> No Party presented evidence to rebut the Applicant's assertions.

Accordingly, I find that any waste generated during construction or after operation of the Wind Project will be properly removed and disposed of at an appropriate waste handling facility.

**I. Other Considerations**

**1. Traffic - Transportation**

In PPRP's ERD, it analyzed any expected impact on transportation that may occur during the construction period. According to PPRP, the deliveries of the large components for construction would be delivered to the construction site by a temporary access road that intersects MD 36 just south of the intersection of MD 36 and MD 55, to Burning Mines Road.<sup>314</sup> PPRP determined by the existence of the temporary access road, construction traffic would avoid MD 55, which for long loads would require turning movement that would be difficult to negotiate. Further, it would avoid a school bus stop at the intersection of

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<sup>312</sup> *Id.* at 53.

<sup>313</sup> *Id.* at 52.

<sup>314</sup> PPRP ERD at 27.

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Vale Summit Road and Burning Mines Road. PPRP noted that the Applicant will remove the road at the end of the construction period, and it will require an access permit from the Maryland State Highway Administration to construct the temporary road.

PPRP expressed its concern as to two existing homes at the intersection of MD 36 to Burning Mines Road and the impact of the truck traffic during the construction period as the homes are less than 100 feet from the road's centerline. To mitigate its concerns, it recommends a licensing condition to limit the number of hours each weekday by which the commercial vehicles may traverse Burning Mines Road and prohibit commercial vehicles on weekends.<sup>315</sup>

PPRP witness Hall testified on potential impacts on transportation and traffic in the regions caused by the commercial trucks needed to deliver equipment, supplies or services to the Wind Project site as well as the increased in vehicular traffic of the construction workers during construction of the Project.

The *pro se* parties were concerned that certain of the construction traffic may adversely impact the school transportation for children in the area. Also they expressed concern about persons living on the road to the Project who may be unable to leave their property during certain deliveries, such as the pieces of the turbine.

Applicant argues that the PPRP condition is too limiting because the inability to make deliveries to the site may extend the

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<sup>315</sup> PPRP ERD at 30.

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construction period. It asks that the deliveries time period in the PPRP Condition be expanded to 7 a.m. to 7 p.m., six days a week, from 8 a.m. to 4 p.m., six days a week. It asserts that by limiting the delivery hours, the condition may create additional conflicts with the school bus traffic in the area, as the construction period may extend beyond the expected summer construction period and into the school year.

I note that the COMAR noise level standard provides an exemption to the noise level thresholds for construction work conducted from 7 a.m. to 10 p.m. Consequently, to limit construction truck traffic from 8 a.m. until 4 p.m. would, as suggested by the Applicant, extend the construction period as the availability of construction materials may result in shorter construction periods each day and therefore require additional construction days to "make up" the time. Consequently, I conclude that Applicant's requested modification to the PPRP Condition No. 19 limitation of hours is reasonable, especially as the Applicant is required to coordinate with the Allegany County Board of Education to ensure that the construction traffic, including the delivery of the blades and other larger components of the wind turbines, does not disrupt or conflict with the school bus schedules.

The Applicant also seeks to expand the period for deliveries beyond the 12-hour period if the delivery must be done off-hours due to technical requirements (such as delivery of concrete that may need to be poured at particular times due to heat

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during the daytime.) My concern with the "exception" is that it provides the Applicant a great deal of discretion to determine that a delivery meets this exception and may schedule the delivery at any time it prefers. These deliveries may be disruptive, disturbing or surprising to individuals, such as those living on or near Burning Mines Road, if they plan certain of their activities based on the expected period in which deliveries may be made. Consequently, the Applicant has not persuaded me that the 12-hour period that I have accepted is not adequate to allow the Applicant to plan deliveries during this period. This modification to PPRP Condition No. 19 is not accepted.

**2. Shadow Flicker**

A shadow flicker occurs when "the blade [of a turbine is] perpendicular to the line of sight from the sun" and, if the person is close enough, may see "a flicker effect on the ground."<sup>316</sup> When the blade is parallel to the line of sight, a flicker effect does not occur.<sup>317</sup> According to Mr. Guldberg, the wind industry follows a guideline of no more than 30 hours per year of shadow flicker to prevent unnecessary annoyance to homeowners.<sup>318</sup> He testified that the origin of the guideline was a ruling by a German court.<sup>319</sup>

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<sup>316</sup> Transcript at 453-454.

<sup>317</sup> *Id.* at 454.

<sup>318</sup> *Id.* at 449.

<sup>319</sup> *Id.* at 451.

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The Shadow Flicker Study for the Project ("Flicker Report") was not submitted by the Applicant until the second day of the evidentiary hearing. The Application contained a flicker study for the Fourmile Ridge Project. Mr. Guldberg was unable to attest to the veracity of the findings in the Flicker Report for the Project as he did not conduct it, but, based on his evaluation of the similarities in locations and maximum shadow flicker predictions, he believed the Flicker Report's results were accurate.<sup>320</sup> Mr. Goldberg also testified that "programs can be installed on a turbine that effectively sense the hours of potential flicker for an identified property and then cap off the operation at 30 hours per year."<sup>321</sup> According to Mr. Guldberg, the other type of mitigation for shadow flicker, is "to put up a vegetative screen" around the house of [the] nearby resident."<sup>322</sup>

In the Executive Summary of the Flicker Report, it stated that "Receptor 79 is predicted to experience the most hours of flicker among the receptors that are not project participants. The predicted duration of shadow flicker at this receptor is 17 hours per year when taking into account annual average cloud cover." According to the Appendix B of the Report, Receptor 79 is Dale Allen who testified on behalf of the *Pro Se* Parties as to his concerns of the visual impact on his health and welfare if the CPCN

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<sup>320</sup> *Id.* at 456.

<sup>321</sup> *Id.* at 455-456.

<sup>322</sup> *Id.* at 458.

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were granted in this matter. Appendix B also reflects that a flicker effect is anticipated to occur on Receptor 79, 143 days per year with the worst day being April 30 when the receptor may experience 32 minutes of flicker. Additionally, under the worst case scenario, the Appendix indicates that the receptor may have 57 hours per year of shadow flicker. Appendix B does not predict any shadow flicker effect on any of the Pro Se Parties' properties. The Flicker Report, however, does predict in the non-worst case scenarios that Participating Properties may experience flicker in excess of 30 hours per year and more than 30 minutes per day.

**a. Position of the Parties**

**(i) PPRP**

As the Flicker Report was not available for review by the Parties until the last day of the evidentiary hearing, Dr. Hall reviewed the report and conducted additional research into shadow flicker impacts, assessment methodology, and standards, and submitted an Affidavit reflecting the results of his research and his analysis of these results, which was attached to PPRP's initial brief.<sup>323</sup> PPRP noted that the German guidelines governing shadow flicker are far more strict than the American Wind Energy

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<sup>323</sup> The Applicant has asked that any argument in PPRP's brief based upon the Affidavit be stricken as PPRP did not follow the process to have the Affidavit admitted into the record. As I find sufficient evidence in the record even if the Affidavit were stricken to come to my same decision, I will not strike the Affidavit, especially as the Applicant did not have any good reason for failing to file the actual Flicker Report for the Wind Project until the 11th hour.

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Association ("AWEA") guidelines. According to Dr. Hall, the German guidelines limit the acceptable levels at shadow receptors to no more than 30 hours per year of astronomical maximum shading time (worst case) and no more than 30 minutes on the worst day of astronomical maximum shadow. Based on the German guidelines, PPRP asserted that the Applicant's Flicker Report would have identified shadow flicker impact as an issue for eight of the non-participating properties.

PPRP determined that some of the non-participating properties may experience actual shadow flicker for more than 30 hours a year and for more than 30 minutes in any one day, and therefore recommended a condition to permit the property owner to seek the appropriate mitigation from the Applicant. PPRP's recommended condition requires the Applicant to develop a process to document and address complaints that are made in writing to the operator of the Wind Project within two years after commencement of its operation that are related to potential shadow flickers. The Applicant must investigate the complaint and provide the complainant a response. The Applicant must submit a copy of the complaint and the response to the Commission and PPRP. If the complainant is not satisfied with the response, then he/she may file a complaint with the Commission, and if the Commission finds the complaint justified, it may require the Applicant to prepare and implement a plan to mitigate the shadow flicker impacts on the affected property.

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**(ii) Pro Se Parties**

Ms. Stark argues that the shadow flicker guideline used by the wind industry appears to have no scientific basis, but rather is geared to the standard which the industry believes is attainable. She points to Ms. McKenzie's testimony on the impact of the shadow flicker on her and her husband's quality of life. She further asserts that the Applicant is able to program its turbines to shut down during the sunrise and sunset period to avoid any shadow flicker on nearby properties.

**b. Analysis and Findings**

Unlike the estimates of the noise levels that may be produced by a wind turbine, Mr. Guldberg's testimony establishes that the shadow flicker predictions are more accurate and the formulas more precise. I conclude that shadow flickers may cause annoyance, but I find no credible evidence to associate a specific health symptom with the shadow flicker based on the forecasted speed of the blades in the record. AWEA has established an industry guideline to mitigate actual shadow flicker that may occur in excess of 30 hours annually or 30 minutes in any given day. The guideline appears to have been based, in part, on a ruling by a German court in which it held that shadow flicker may be an "annoyance" if in excess of established guideline time periods. Based on Mr. Guldberg's testimony, each individual turbine is able to determine the actual flicker patterns for any given year for any receptor coordinates programmed into the turbine. If programmed, a

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wind turbine is able to modify its operation upon a flicker threshold being met for an identified receptor and avoid any further flicker for either a day or a year in excess of the set limit to that receptor.

I conclude that PPRP's recommended condition, without any parameters, permits a resident to file a complaint for mitigation because he/she finds any shadow flicker to be a perceived problem. It therefore does not resolve the issue, but merely "kicks the can down the road," for further litigation between the Applicant and those individuals residing around the Wind Project. I further conclude that a zero threshold level, as argued by Mrs. Stark, is not reasonable as it would require the Wind Project to cease operation every day during sunset and sunrise even though not every turbine on every given day will produce shadow flicker that is able to be perceived around a residential structure. On the other hand, simply agreeing that the AWEA flicker threshold guidelines are reasonable, without any scientific basis for the guidelines, seems equally prone to litigation.

According to the Flicker Report, the consultant defined the distance at which shadow flicker will not occur as  $D = 10 \times (\text{hub height} + \text{rotor radius})$ ; for the three GE 1.7 turbines, the distance I calculate based on this formula is 2953 feet, and the 17 GE 2.3 turbines, 3435 feet. The Flicker Report indicates that receptors beyond the calculated distance may see a shadow, but will not perceive a flicker pattern. Under the worst case scenario, the Flicker Report reflects that certain of the non-participating

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receptors may experience shadow flicker in excess of 30 hours per year, and, on the worst day of the year, several non-participating receptors experience more than 30 minutes of flicker a day. I also note that Receptor 79 could potentially experience shadow flicker 143 days a year, or 40% of the year.

My review of Appendix B also reveals that the non-participating receptors will experience shadow flicker, accounting for cloud cover, ranging from a high of 17 hours per year to a low of 4 hours per year, but the worst case scenarios range from a high of 57 hours with a low of 13 hours per year. Under the worst case scenario, 8 of the non-participating 15 receptors listed in the Report will experience shadow flicker estimated to exceed 30 hours per year. Per the Company's witness's testimony, the range exists because of the position of the receptor to a turbine and that turbine's position to the sun at any given hour.

After careful consideration, I determine that no non-participating residential structure should be required to experience annual hours of shadow flicker, any minutes of shadow flicker in one day, or more days of shadow flicker than is in excess of any Participating Property. The Participating Properties are being compensated for accepting the potential annoyance or discomfort caused by the shadow flicker, whereas certain of the non-participating properties will experience a disproportionate impact caused by the shadow flicker without any reparation for the potential adverse impact that they will be required to tolerate. The lowest estimated annual shadow flicker, under the "cloud cover

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analysis" for Participating Property Receptor 64 is eight hours annually and 23 minutes on the worst day.<sup>324</sup> Participating Property Receptor 72, is expected to have potentially 60 days per year in which shadow flicker may occur.<sup>325</sup> Accordingly, I find that the threshold levels for actual shadow flicker for any nearby non-participating residential property (whether a full-time resident or seasonal or currently vacant) shall not exceed eight hours annually, 23 minutes on any given day, and no more than 60 days a year.

To mitigate the adverse impact of the shadow flicker, a CPCN for the Wind Project must be subject to a licensing condition directing the Applicant to program the applicable turbines with the coordinates of the non-participating receptors considered in its Flicker Report to ensure that the foregoing thresholds are not exceeded as well as the coordinates of the *pro se* parties, if their residential structures were not part of the Flicker Report analysis. I do not accept PPRP's recommended condition as the Applicant has agreed to establish a 24/7 complaint line, which should allow nearby residents to present perceived problems with shadow flicker. I expect that the Applicant will be responsive to those complaints. If the Applicant were to exceed the thresholds set, an individual may submit a formal complaint to the Commission,

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<sup>324</sup> Appl. Ex. 27 at 11 (Receptor 64).

<sup>325</sup> *Id.*

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if the Applicant does not respond to the individual's complaint to his/her satisfaction.

Even with the mitigation directed, I find that the shadow flicker will have a minimal adverse impact on several non-participating properties that may disturb the residents' daily routines and comfort.

**3. Ecological Impact on Wildlife and Rare, Threatened and Endangered ("RTE") Species**

The Applicant conducted wildlife surveys within the Project site between 2004 and 2012, including avian and bat studies.<sup>326</sup> With input from the DNR and the U.S. Forest and Wildlife Service ("USFWS"), potential presence of RTE species was determined and used in designing the layout of the Project.<sup>327</sup>

By letter dated August 5, 2015, DNR Wildlife and Heritage Service ("WHS") acknowledged that the potential impacts to Allegheny Woodrat habitat were reviewed on site by WHS, and that the final turbine layout met guidelines for avoiding "take" of the Allegheny Woodrat.<sup>328</sup> PPRP also noted the measures that the Applicant would follow in the construction phase and the operational phase to avoid and minimize impacts to birds and bats to the extent practicable.<sup>329</sup> PPRP said that a Technical Assistance Letter

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<sup>326</sup> Appl. ERD at 34.

<sup>327</sup> *Id.*

<sup>328</sup> PPRP ERD at 15.

<sup>329</sup> *Id.*



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accepting the Applicant's Bird and Bat Conservation Study ("BBCS") was issued by the USFWS on April 30, 2015, and indicated that the conservation strategy outlined in the BBCS adequately avoids potential impacts to Endangered Species Act-listed species and reduces the potential for mortality of migratory birds.<sup>330</sup>

PPRP also recommended certain guidelines for the Applicant to follow to protect the Forest Interior Dwelling Bird habitat that is contained within the Project site.<sup>331</sup> PPRP further recommended that the Applicant be required to establish long-term pollinator habitat with native flowering species within the Project site.

As to RTE species, PPRP recommended a specific licensing condition to protect the known habitats of the Allegheny Woodrat. PPRP witness Feller identified the timber rattlesnake as a protected species (one that is generally persecuted in the areas in which it is found) that may be affected by the Wind Project, and indicated that PPRP recommended Licensing Condition No. 6 required the Applicant to protect timber rattlesnakes and their habitat.<sup>332</sup> At one of the public hearings, an individual expressed his concern that the blasting that will be necessary to construct the turbines may cause the timber rattlesnakes found on Dan's Mountain to

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<sup>330</sup> *Id.* at 16.

<sup>331</sup> *Id.* at 16-17.

<sup>332</sup> Feller Direct at 4-6.

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migrate down the mountain to the school grounds at the bottom of the eastern side of the mountain.

At the hearing, I asked Mr. Feller whether he had any concerns about the timber rattlesnakes migrating down the mountain due to the blasting. He expressed his doubt that the snakes would move due to the blasting. He indicated that the rattlesnakes "have very predictable movement patterns in the sense that hibernacury, ancestral, the young learn where they are and they use the same dens for hundreds if not over thousands of years." Thus, he said, if one knew where the den was located, all of the snakes could be killed by destruction of the den. Consequently, his concern was for the safety of the dens on the mountain, and he did not foresee any mass migrations.

Also at the public hearing, a few individuals commented that they had heard that farm animals and dogs may be impacted by the proximity of wind turbines - resulting in lower milk production, inability to breed, and aberrant behaviors. I asked Dr. McCunney if he were aware of any studies of the impact on animals from wind turbines, other than one study conducted on the ears of guinea pigs. He stated that he was not aware of any studies on the impact of wind turbines on animals that would respond to the public commenters' concerns. Consequently, I have no evidence to find that there will be any adverse impact on any nearby farm animals or pets.

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**4. Renewable Energy Portfolio Standard - Need**

Applicant represented that the Wind Project will contribute to the overall compliance with the State's Renewable Energy Portfolio Standard ("RPS") as well as provide an in-state power source to help reduce reliance on imported energy.<sup>333</sup> PPRP also noted that the Wind Project will help the State meet its RPS goal of 20% renewable energy use, including wind, by 2022.<sup>334</sup> Staff witness Wilson agreed that the Wind Project would contribute toward meeting the State's RPS goal.<sup>335</sup> Mrs. Stark argues that the Applicant has failed to show the "necessity" for the Wind Project because it failed to evidence that the State's RPS would not be met if the CPCN for the Project was denied.

In its reply brief, Staff argues that consideration by the Commission for the "need" for the Wind Project was eliminated from the statute at the time of deregulation of the electricity supply.<sup>336</sup> Applicant points out that the Commission has granted a CPCN to a project which had no "positive benefit of ... contributing to the Maryland grid, or to the State's efforts to curtail climate change ...."<sup>337</sup> It further argued that the General

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<sup>333</sup> Appl. ERD at 26-27.

<sup>334</sup> PPRP ERD at 8.

<sup>335</sup> Wilson Direct at 12.

<sup>336</sup> Staff Reply Brief at 15.

<sup>337</sup> Applicant Reply Brief at 23, citing *In re the Application of Dominion Cove Point LNG, LP for a Certificate of Public Convenience and Necessity to Construct a Generating Station with a Name-Plate Capacity of 130 MW at the Dominion Cove Point Liquefied Natural Gas Terminal in Calvert County, Maryland*, Order No. 86372, at 63 (May 30, 2014).

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Assembly has indicated its intent to encourage the development of renewable energy resources in Maryland, and that the General Assembly found the benefits associated with renewable energy sources within the State "accrue to the public at large."<sup>338</sup> Lastly, it explained how the California decision cited by Ms. Stark supported the grant of its CPCN in this matter as it may avoid a "situation where it becomes necessary to rely on distribution customers to fund renewable generation in rate base, at their (rather than investors') risk."<sup>339</sup>

Based on prior Commission precedent, I find no requirement that the Applicant evidence an absolute "need" for its Wind Project through establishing that the State's RPS goal would otherwise not be met. The "necessity" portion of the phrase "public convenience and necessity" is determined by the overall consideration of the benefits of a project that may accrue State-wide and locally to the burdens or adverse impacts that are not fully mitigated that may be experienced in the event of the grant. Consequently, the contribution of the Wind Project to the State's RPS goal is not a singular element that determines whether the Wind Project is in the "public convenience and necessity," nor must the Applicant evidence that the RPS would not be met if its Project was not built. Consequently, I will consider the Wind Project's

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<sup>338</sup> Applicant Reply Brief at 24, citing § 7-702(b)(1).

<sup>339</sup> *Id.* at 25.

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contribution to the State's RPS as a positive factor in making my overall determination.

**VI. FINDINGS AND CONCLUSION**

To determine whether the grant of the CPCN is in the public convenience and necessity, I weigh the potential benefits of the construction and operation of the Wind Project against the adverse impacts to the State, the County, and the local residents.

I find that the benefits of the Wind Project are:

- A temporary, short-term economic benefit to the County and State accruing from the construction and operation of the Project and a very slight net economic benefit to the County and the State during the useful life of the Project.
- The Project potential contribution toward the State's attainment of its renewable energy portfolio standard by 2022.

Subject to the applicable recommended licensing conditions, I find that the Wind Project will have no adverse permanent impact on aviation safety, potable water supplies, electromagnetic interference, transportation, historic and cultural resources, disposal of waste, and the stability and reliability of the electric system. The licensing condition requiring a decommissioning plan and associated bond will protect the County residents from any costs associated with removing the wind turbines in the event the Applicant or applicable land owners fail to do so

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at the end of the Wind Project's useful life or abandonment of the Project. Thus, these factors do not weigh against the grant of the CPCN, but none may be considered a benefit of the Wind Project.

I find that the Wind Project will have an adverse impact on the esthetics of the local communities on and around Dan's Mountain. Further, I find that the adverse impact caused to the comfort of nearby residents by the noise produced and the shadow flicker perceived will not be fully mitigated by incorporating licensing conditions into a CPCN.

Overall, in weighing the benefits against the adverse impacts that are unable to be mitigated by incorporating licensing conditions into the CPCN grant, I find that benefits that may accrue to the public at large by construction of the Wind Project do not justify or offset subjecting the local community to the adverse impacts that will result from the Wind Project's construction and operation. Consequently, after giving due consideration to each of the factors required by PUA § 7-207(e) and the other issues raised by the Parties, I find that grant of a CPCN for the Wind Project is not in the public convenience and necessity.

Accordingly, I hereby deny the Application and the Applicant's request for a CPCN. Further, my denial of the Application moots the Applicant's request for waiver of the two-year filing requirement in PUA § 7-208, and it is therefore dismissed.

IT IS, THEREFORE, this 25th day of January , in the year Two Thousand Seventeen,

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ORDERED: (1) That the application of Dan's Mountain Wind Force, LLC for a Certificate of Public Convenience and Necessity to construct a 59.5 MW wind generating station on Dan's Mountain is hereby denied.

(2) Any outstanding requests or motions not granted herein are hereby denied.

(3) That this Proposed Order will become a final order of the Commission on February 25, 2017, unless before that date an appeal is noted with the Commission by any party to this proceeding as provided in Section 3-113(d)(2) of the Public Utilities Article, or the Commission modifies or reverses the Proposed Order or initiates further proceedings in this matter as provided in Section 3-114(c)(2) of the Public Utilities Article.

  
Terry J. Romine  
Chief Public Utility Law Judge  
Public Service Commission of Maryland