MID OHIO ENERGY
COOPERATIVE, INC.
A Touchstone Energy® Cooperative
The Power of Human Connections
www.midohioenergy.com

August 3, 2010

Ms. Kim Wissman, Executive Director
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215-3793

Re: Hardin Wind Energy LLC
Case No. 09-479-EL-BGN
And future wind development projects in Ohio

Dear Ms. Wissman:

Following the Ohio Power Siting Boards (OPSB) recent decision to deny Mid-Ohio Energy's application for rehearing in the Hardin Wind LLC case, the board and staff of Mid-Ohio Energy feel it necessary to expand on the full situation of the Hardin Wind project as well as our concerns with the siting of future wind development projects within Ohio. We fully understand the OPSB's decision that procedurally Mid-Ohio Energy is not a party in Hardin Wind's proceeding and that the OPSB is statutorily prevented from considering the issue. However, we feel the OPSB should be made aware of the overall situation and the potential for financial hardship that could result for the membership of Mid-Ohio Energy.

Mid-Ohio Energy Cooperative is a public utility operating in parts of Allen, Auglaize, Crawford, Hardin, Logan, Hancock, Marion, Morrow, Union, and Wyandot counties for the past 74 years. Mid-Ohio Energy's service territory is very rural, serving only 6 members per mile, covering 2,400 square miles.

With the low member/mile ratio, as well as the large territory, Mid-Ohio Energy's 24 full time employees rely heavily on the technologies and tools implemented over the past years. Systems such as SCADA, AMI, Load Management, Substation Video Surveillance & Security, Remote "Hot Spot" and Mobile Data, Outage Management, AVL, and digital voice communications are key tools utilized daily to ensure employee and public safety as well as reliability to the members of the cooperative.

Secure and reliable communications is the heart of these advanced systems. Several communication technologies are utilized such as power line carrier, fiber optics, satellite, and wireless. Mid-Ohio Energy has built a robust wireless network over the past few years that focus on power grid security as well as cyber security. Today there remains a lack of acceptable communications infrastructure owned by telecommunications providers within the vicinity of Mid-Ohio Energy's rural substations and tie switch

locations, thus forcing the cooperative to build its own communications infrastructure tying the various systems together. (See Example 1 "Mid-Ohio Energy Smart Grid System")

In 1999 Mid-Ohio Energy explored its options of how to communicate reliably and securely with its 13 substations, 15 tie-switch locations, and two office locations. Now, as well as then, there were primarily three alternatives. Fiber-optic communications, wireless such as microwave, and satellite. Fiber-optics presented the highest up-front investment cost as well as challenges of obtaining right-of-way when crossing areas outside the cooperatives certified distribution territory. Today, the average cost of installing a rural fiber-optic data system is approximately $ 35,000/mile. Mid-Ohio Energy would need to invest over $ 8,000,000.00 for such a system. Satellite technology is utilized today in all of the cooperatives' substations. However, it has very limited bandwidth and cannot handle the demands required by today's SCADA, AMI, and Video systems. Wireless systems, especially microwave, offer reliable, secure and high-speed connections over long distances at a modest price. The reasons stated above are why so many rural utility systems utilize and rely on wireless equipment to communicate with the vital equipment within their systems.

Today's communication systems are many times just as vital of a component as the poles and wires used for distributing electricity. It is critical that Mid-Ohio Energy protect its communications network and try to lessen potential interference which could potentially occur.

It is Mid-Ohio Energy's position that several issues resulting from the recent Hardin Wind LLC case, as well as future wind developments in and around Mid-Ohio Energy's certified territory, should be carefully considered by the OPSB staff. It is our hope that these concerns would not only clarify Mid-Ohio Energy's concerns with the current Hardin Wind LLC project, but also aid with future wind development projects in Ohio. Our concerns are as follows:

1. Notification - Mid-Ohio Energy Cooperative owns and operates a substation in Lynn township, Hardin county. The 1.01 acre property sits within the Hardin Wind project. According to the Ohio Administrative Code rule 4906-5-08(B)(3), Mid-Ohio Energy should have received written notification as a property owner within the proposed development. Mid-Ohio Energy did not receive such notice nor is the cooperative listed as a property owner within or outside the project on Hardin Wind's application.

   According to Comsearch, the microwave consultant used by Hardin Wind, several states now have notification requirements for companies who are indentified to have microwave systems operating within a proposed wind project. Mid-Ohio Energy has recently talked with two other private companies operating wireless equipment in the area. One company is identified in Hardin Wind's report, operating 6 Ghz microwave across the wind development. The other company was not identified in the report and is operating license free 2.4Ghz and 5.8 Ghz equipment. Both companies were not aware of the potential impact the wind development will have on their equipment nor were they aware of the forfeiture of some of their legal rights by not attending the public meetings.

Mid-Ohio Energy respectfully requests the OPSB consider requiring written notification to all identified licensed microwave owners within a proposed wind development. In addition, an on-site survey should be conducted within a reasonable radius of the outer boundaries of the proposed wind project, to determine if non-licensed equipment is present and identified owners should be notified. Simply stated: An investigation of ownership of equipment should be conducted if parabolic, yagi, or flat panel antennas are located within the proposed wind farm, or are pointing towards the proposed wind farm from the outside.

2. Follow-up to data request and interrogatories – On November 20, 2009, the OPSB staff received the response to their Data Request and Interrogatories submitted on November 10, 2009. On page 20, Item 48 of Hardin Wind's response, the wind developer stated: *"Based on this updated report, two of the proposed wind turbine locations are expected to interfere with the microwave path. The Applicant is in the process of working with the involved parties to mitigate this impact through wind turbine relocation and will provide the results of this to the OPSB Staff."*

   The first contact between officials of Hardin Wind and Mid-Ohio Energy occurred on January 19, 2010 when John Metcalf and Mark Terrill from Mid-Ohio Energy visited Paul Fletcher from Hardin Wind at the developer's downtown office. Mr. Fletcher gave us Mr. Adum's contact information and took the maps provided depicting Mid-Ohio Energy's wireless networks. After 3 attempts to reach Mr. Adum by phone, we contacted their attorney to ask if she could have Mr. Adum return our call. Finally, Mr. Adum made contact on January 26, 2010.

   Over the next several weeks Mid-Ohio Energy provided data to Invenergy and Hardin Wind representatives concerning the cooperative's facilities. Finally, on March 19, 2010, Hardin Wind provided the cooperative with the results of the updated microwave study, dated February 9, 2010. The revised study showed four additional turbines that would impact the cooperative's microwave system. We insisted this study be added to the application, but Mr. Adum refused and assured us verbally he would make sure the study would be considered in the final layout. He also pointed out that the project was a "Test Case" with the OPSB. In addition, Hardin Wind's Memorandum Contra filed April 29, 2010, page 3, footnote 4 states: *Hardin representatives were first contacted by Mid-Ohio's President & CEO, John Metcalf in late January 2010."* This makes Hardin Wind's response to the November 10, 2009 Data Request and Interrogatories , page 20, Item 48, inaccurate and misleading.

   It is clear that Hardin Wind failed to contact the parties and mitigate the impact of the known interference as promised to the OPSB staff in November 2009. In addition, Hardin Wind should have submitted the revised February 2010 Comsearch report showing the revisions prior to the OPSB issuing the Order and Certification to Hardin Wind in March 2010. Hardin Wind knowingly allowed inaccurate data to remain in its application while not giving considering to the potential impact it could cause to the local community if the cooperative's microwave communications were compromised.

3. Coordinates discrepancies- According to page 2 of the November 13, 2009 Comsearch report, the footnote reads *"We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license".* Current FCC regulations allow accuracy within one (1) second in latitude and longitude. The result could be that an installation could vary as much as 100 feet in any direction. In a review of the eight sites listed in Comsearch's November 2009 report, every tower site varied from the absolute mapped coordinate when plotted using Google Earth. The difference between the tower locations and the FCC coordinates varied from as close as 15 feet at ID#2 New Par 6 Ghz Indian Lake site to as much as 980 feet at ID #3 American Electric Power 6 Ghz Belefontaine site. In fact, Mid-Ohio Energy recently reviewed the two sites listed as ID#1 on the November 2009 and February 2010 Comsearch reports. The cooperative received coordinates for both locations from the Hardin County GIS coordinator, a licensed surveyor, and the cooperative's own mapping GIS equipment. None of the coordinates matched exactly nor did they match the coordinates listed on the FCC license.

Mid-Ohio Energy has discussed repeatedly its concerns on this issue with Hardin Wind. It has been the cooperative's position that an accurate Fresnel zone clearance analysis cannot be performed unless the same procedure and equipment for determining coordinates are used for the turbines as well as the microwave locations. In other words, the same surveyor who stakes the exact center point of the turbines in question should also identify the exact location of the microwave systems. Those coordinates should then be used in the final design for the project. (Example 2 "Best Case Scenario Using Coordinates Obtained From FCC License") attempts to illustrate what happens when FCC coordinates (assuming they are within accuracy requirements) are used to determine turbine placement. Using Mid-Ohio Energy's 15 mile 11 Ghz microwave path cutting exactly between two GE 2.5xl Turbines placed 3 times the rotor diameter apart, the first phase Fresnel clearance could be as little as 106 feet. Clearances could be much less if the developer does not accurately site the turbine. Also, lower frequency point to point systems such as the cooperative's 900 Mhz systems would have much larger Fresnel zone characteristics and much tighter clearances. Based on this analysis, Mid-Ohio Energy feels that interference issues may occur with its 900 Mhz equipment, as well as its 11 Ghz system within the Hardin Wind farms footprint .

In conclusion, Mid-Ohio Energy is very concerned that under the OPSB March 2010 order, Hardin Wind is only obligated to remove or relocate turbines 38 and 180 in order to avoid Mid-Ohio Energy's 11 Ghz microwave system, while the most recent Comsearch study shows turbines 33, 39, 54, and 181 will likely cause potential obstructions instead. Hardin Wind technically has no legal obligation to remove or relocate turbines 33, 39, 54, and 181 and Mid-Ohio Energy has few, if any options for recourse if Hardin Wind fails to do so. If this microwave path is obstructed, Mid-Ohio Energy will completely lose communications to two substations and three tie-line switching points affecting over 2,700 homes and businesses in Hardin, Auglaize, and Allen counties. With the development of several wind projects within Mid-Ohio Energy's territory, including the Hardin Wind project, JW Great Lakes Hardin North project, and the Horizon Energy Round Barn project, just to name a few, rerouting the microwave around the Hardin Wind farm would be cost prohibitive and likely physically impossible. The only alternative

that can meet our security and bandwidth needs would be replacing the existing microwave system with fiber-optic communications. Replacing this one microwave system with a fiber-optic system would cost $ 850,000.00 to $ 1,200,000.00 according to recent estimates and would likely take at least one year to construct.

Any cost to relocate, replace, and abandon Mid-Ohio Energy's microwave systems would fall solely on the cooperative's 7,100 members. With double digit unemployment in all but one county we serve, as well as rising rates due to increased G&T cost, over 23% of Mid-Ohio Energy's members are delinquent at least 30 days or more at any given time. Mid-Ohio Energy has been very proactive by reducing its workforce by 15%, freezing wages and decreasing employee benefits, creating a 32% reduction in total operating budgets in order to hold rates down for its struggling membership.

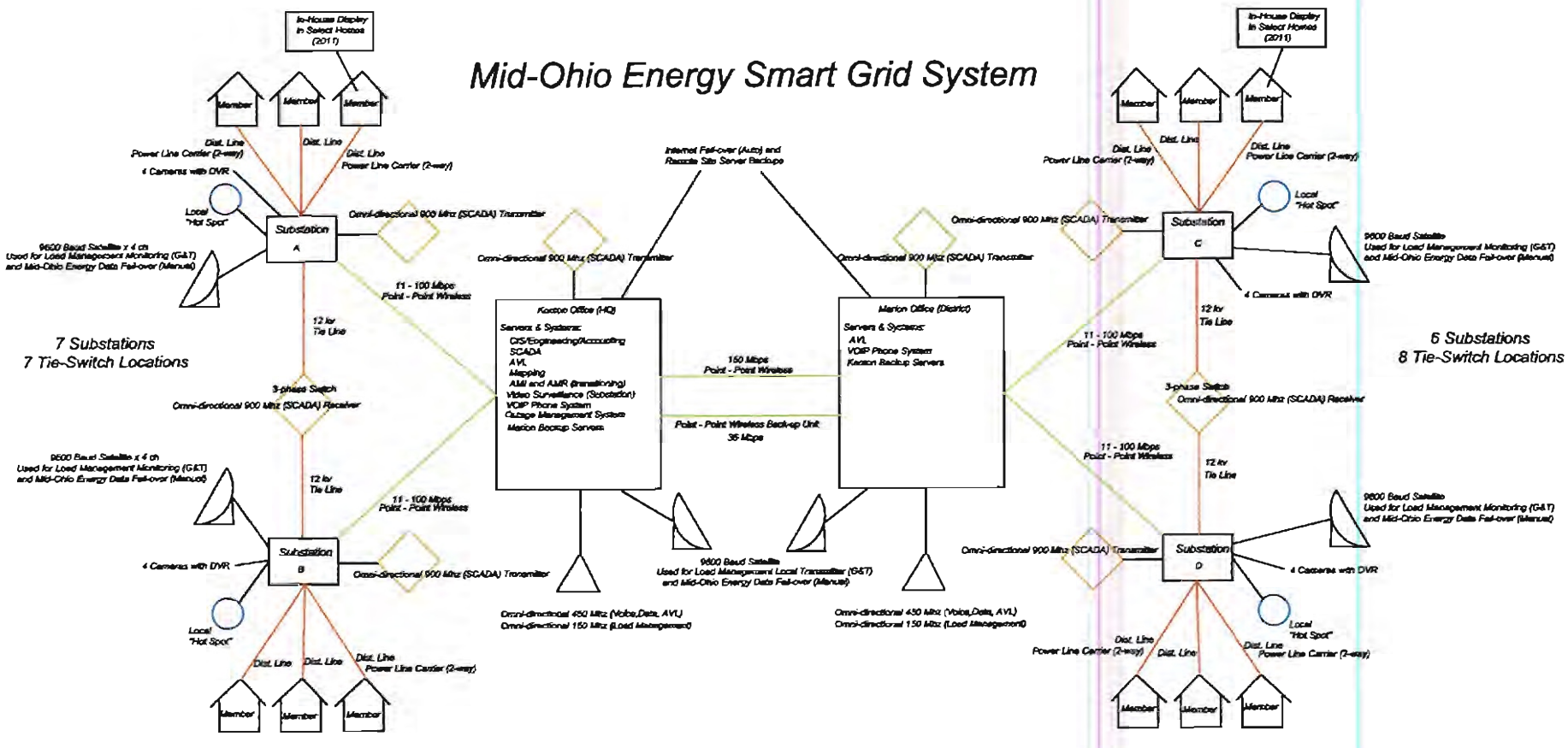
I respectfully ask that your staff consider our comments and concerns when working with Hardin Wind on the final turbine layout. Also I hope consideration is given to future wind development applications based on the events from the Hardin Wind case. I would also invite you, the OPSB, or any of your representatives to visit our cooperative to see our automated systems or to simply discuss our concerns further. Thank you for your consideration in this matter.
You can reach me at (419) 673-7289 or at the address listed below.

Sincerely,

John Metcalf
President & CEO

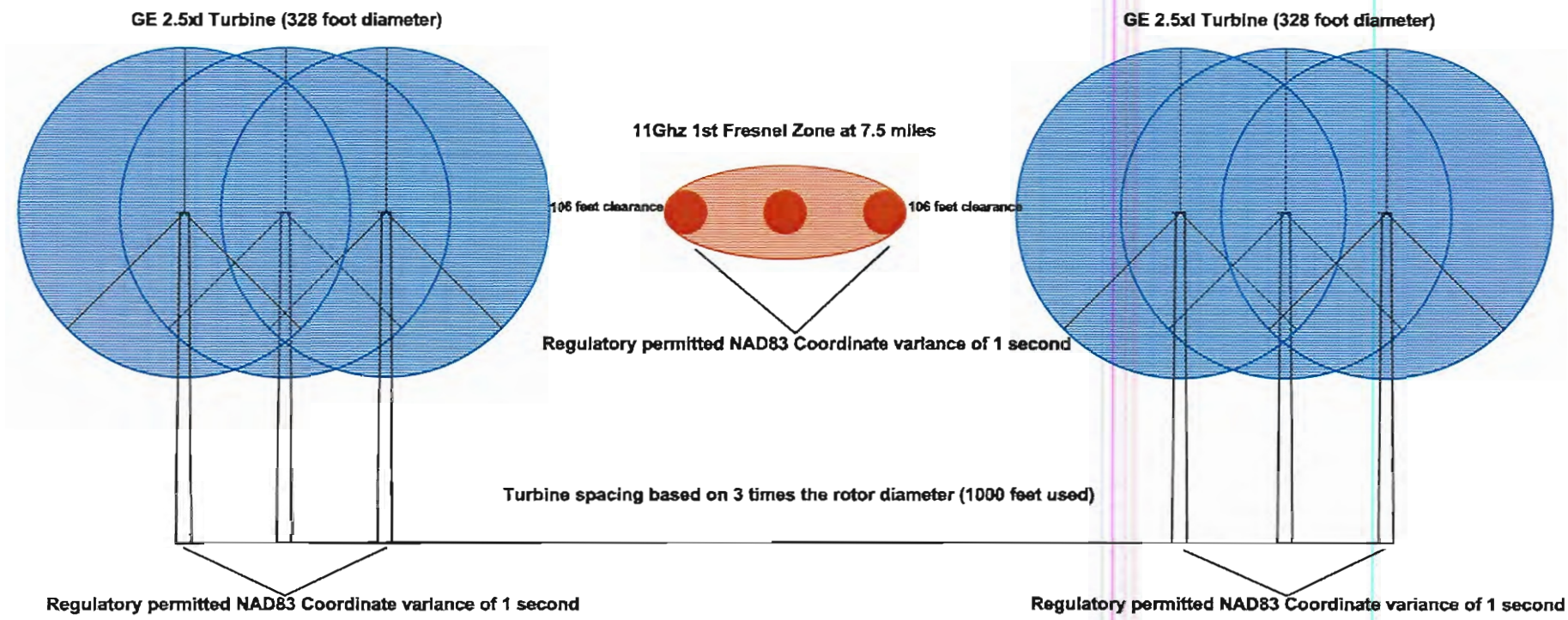
Corporate Office: 555 West Franklin Street – Kenton, Ohio 43326-0224
Phone: (419) 673-7289 or 1 (888) 382-6732 Fax: (419) 673-8388

EXAMPLE 1


Mid-Ohio Energy Smart Grid System
In-House Display In Select Homes (2011)
Member
Member
Member
Dist. Line Power Line Carrier (2-way)
Dist. Line
Dist. Line Power Line Carrier (2-way)
4 Cameras with DVR
Local "Hot Spot"
Substation A
Omni-directional 900 Mhz (SCADA) Transmitter
9600 Baud Satellite x 4 ch Used for Load Management Monitoring (G&T) and Mid-Ohio Energy Data Fail-over (Manual)
11 - 100 Mbps Point - Point Wireless
12 kv Tie Line
7 Substations
7 Tie-Switch Locations
3-phase Switch
Omni-directional 900 Mhz (SCADA) Receiver
9600 Baud Satellite x 4 ch Used for Load Management Monitoring (G&T) and Mid-Ohio Energy Data Fail-over (Manual)
12 kv Tie Line
11 - 100 Mbps Point - Point Wireless
Substation B
4 Cameras with DVR
Omni-directional 900 Mhz (SCADA) Transmitter
Local "Hot Spot"
Dist. Line
Dist. Line
Dist. Line Power Line Carrier (2-way)
Member
Member
Member
Internet Fail-over (Auto) and Remote Site Server Backups
Omni-directional 900 Mhz (SCADA) Transmitter
Omni-directional 900 Mhz (SCADA) Transmitter
Kenton Office (HQ)
Servers & Systems:
GIS/Engineering/Accounting
SCADA
AVL
Mapping
AMI and AMR (transitioning)
Video Surveillance (Substation)
VOIP Phone System
Outage Management System
Marion Backup Servers
150 Mbps Point - Point Wireless
Point - Point Wireless Back-up Unit 35 Mbps
Marion Office (District)
Servers & Systems:
AVL
VOIP Phone System
Kenton Backup Servers
9600 Baud Satellite Used for Load Management Local Transmitter (G&T) and Mid-Ohio Energy Data Fail-over (Manual)
Omni-directional 450 Mhz (Voice,Data, AVL)
Omni-directional 150 Mhz (Load Management)
Omni-directional 450 Mhz (Voice,Data, AVL)
Omni-directional 150 Mhz (Load Management)
In-House Display In Select Homes (2011)
Member
Member
Member
Dist. Line Power Line Carrier (2-way)
Dist. Line
Dist. Line Power Line Carrier (2-way)
Omni-directional 900 Mhz (SCADA) Transmitter
Substation C
Local "Hot Spot"
9600 Baud Satellite Used for Load Management Monitoring (G&T) and Mid-Ohio Energy Data Fail-over (Manual)
4 Cameras with DVR
12 kv Tie Line
11 - 100 Mbps Point - Point Wireless
6 Substations
8 Tie-Switch Locations
3-phase Switch
Omni-directional 900 Mhz (SCADA) Receiver
11 - 100 Mbps Point - Point Wireless
12 kv Tie Line
9600 Baud Satellite Used for Load Management Monitoring (G&T) and Mid-Ohio Energy Data Fail-over (Manual)
Omni-directional 900 Mhz (SCADA) Transmitter
Substation D
4 Cameras with DVR
Local "Hot Spot"
Dist. Line Power Line Carrier (2-way)
Dist. Line
Dist. Line Power Line Carrier (2-way)
Member
Member
Member

EXAMPLE 2

Best Case Scenario Using Coordinates Obtained From FCC License



Note: 106 foot horizontal clearance is based on 11 Ghz. Lower frequencies and longer path distances would decrease the horizontal clearance requirements needed.

Summary: Correspondence from Mid Ohio Energy Cooperative regarding microwave communications interference electronically filed by T Burgener on behalf of K Wissman