STATE OF IOWA
DEPARTMENT OF COMMERCE
BEFORE THE IOWA STATE UTILITIES BOARD

IN RE:	:	
APPLICATION OF MIDAMERICAN ENERGY COMPANY FOR A DETERMINATION OF RATEMAKING PRINCIPLES	:	**DOCKET NO. RPU-2014-_0002**

DIRECT TESTIMONY OF PETER J. SCHUSTER

Q. Please state your name and business address.

A. Peter J. Schuster. My business address is 106 East Second Street, Davenport, Iowa.

Q. By whom are you employed and in what position?

A. I am employed by MidAmerican Energy Company ("MidAmerican" or "Company") as Supervisor, Electric System Planning.

Q. Please describe your responsibilities as Supervisor, Electric System Planning.

A. I supervise electric transmission and distribution planning functions for MidAmerican's Quad Cities, Iowa City and Fort Dodge areas, and oversee generation interconnections to the MidAmerican electric system, including coordinating with the Midcontinent Independent System Operator, Inc. ("MISO") on MISO's interconnection study process where new wind generation typically dominates the generation queue, applying MidAmerican's technical requirements for interconnection to the MidAmerican electric transmission and distribution systems and negotiating facilities studies and construction agreements and interconnection agreements for such interconnections.

Q. Please describe your education and business experience.

A. I received a Bachelor of Science degree in Electrical Engineering in 1993 from Iowa State University. I began my employment with MidAmerican in 1996 as an Engineer in the Distribution Planning Department. In 1997, the department was reorganized as the Transmission and Distribution Planning Department. In 2000, I moved to the Electric Reliability Department. I was promoted to Senior Engineer in 2005. In 2006, I rejoined the Electric System Planning Department. My primary duties as an Engineer and Senior Engineer in the planning departments were to conduct short-term and long-term planning for the transmission and distribution systems in the Waterloo, Fort Dodge, Iowa City, Quad Cities, and/or Des Moines areas. My primary duties as an Engineer and Senior Engineer in Electric Reliability Department were to develop and coordinate reliability improvement plans. In 2011, I was promoted to Supervisor, Electric System Planning.

Q. Do you belong to any professional associations?

A. I am a member of the Institute of Electrical and Electronics Engineers ("IEEE").

PURPOSE OF TESTIMONY

Q. What is the purpose of your prepared direct testimony?

A. The purpose of my testimony is to present the transmission information portion of the Ratemaking Principles Application of MidAmerican Energy Company for the Wind IX Iowa Project ("Ratemaking Principles Application"). I will also sponsor Section 1.6, Transmission Information, and Section 4.3.2, Other System Reliability Considerations, of MidAmerican's Ratemaking Principles Application. I will also explain the transmission system analyses that was/will be performed

regarding the existing local and regional transmission systems' capabilities to reliably support the interconnection of Wind IX Iowa Project ("Wind IX" or "Project") capacity to be installed.

Q. Please provide a list of documents referenced in your testimony that are available publicly and provide the location of those documents.

A. The following publicly available documents referenced in my testimony are:

1. Midcontinent Independent System Operator, Inc ("MISO") Business Practice Module 15 – Generation Interconnection (BPM 015 - Generation Interconnection at: https://www.misoenergy.org/Library/BusinessPracticesManuals/Pages/BusinessPracticesManuals.aspx)
2. MISO Tariff Attachment X Generator Interconnection Procedures ("GIP") at: https://www.misoenergy.org/Library/Tariff/Pages/Tariff.aspx
3. MISO's interactive generation queue at: https://www.misoenergy.org/PLANNING/GENERATORINTERCONNECTION/Pages/InterconnectionQueue.aspx

TRANSMISSION ANALYSES REQUIRED FOR THE WIND IX SITES

Q. Please summarize the procedures that will be used to determine the impacts of the Wind IX sites on the local and regional transmission systems.

A. For each Wind IX site identified for development, transmission analyses are performed to determine what transmission system additions/modifications, if any, are required in order for that Wind IX site to meet the requirements of the Board. As with the original Wind Power Project (310.5 MW – Wind I), the Wind Power

Expansion Project (50 MW – Wind II), the 2006-2007 Wind Power Expansion Project (222 MW – Wind III), the Wind IV Iowa Project (540.8 MW), the Wind V Iowa Project (108 MW), the Wind VI Iowa Project (52.5 MW), the Wind VII Iowa Project (1000.3 MW), the Wind VIII Iowa Project (1,050 MW), the Greater Des Moines Energy Center ("GDMEC") and the Council Bluffs Energy Center (now Walter Scott Energy Center) Unit 4 ("WSEC-4"), MidAmerican can assure the Board that interconnection of the Wind IX sites with the local and regional transmission systems will be consistent with standard utility practices and will not degrade the adequacy, reliability or operating flexibility of the existing transmission system from a local and regional perspective. The Wind IX sites will meet MISO interconnection requirements. MISO is the Transmission Provider for MidAmerican. MidAmerican will work with MISO, other MISO Transmission Owners, and non-MISO Transmission Owners, in MISO's generation interconnection process to ensure that the Wind IX sites meet requirements of MISO, affected utilities, and MidAmerican.

Q. How can you be so sure that the Wind IX sites will meet the above-mentioned requirements?

A. The Wind IX project's interconnection requests must receive MISO approval before Wind IX sites can be interconnected. MISO is responsible for determining whether planned transmission system additions and generation additions meet MISO requirements and the reliability criteria of MISO Transmission Owners and other affected utilities. MISO requires and completes extensive studies to demonstrate that reliability criteria are met for the addition of each Project site, and MISO does not tender or approve a generation interconnection unless the

criteria are met. Also, MISO, as the independent Transmission Provider, ensures that such studies are done on a consistent basis regardless of the party requesting the interconnection. Thus, it is a prerequisite to their development that the Wind IX sites meet the above-mentioned requirements. These procedures are described in greater detail below.

Q. Please provide additional details concerning the transmission analyses to be performed.

A. MISO has administrative and technical requirements for new interconnections in its Business Practice Module 15 – Generation Interconnection ("BPM 15"), and in its Tariff Attachment X Generator Interconnection Procedures ("Tariff for GIP") documents. These standardized interconnection requirements detail the requirements to be met in achieving a generation interconnection with a MISO Transmission Owner. These documents are publicly available as referenced previously. The Wind IX sites have to comply with these requirements, which are consistent with standard utility practices.

When considering new interconnections to the transmission system, MISO's practice, MidAmerican's practice, and standard utility practice is to ensure continued transmission system adequacy, reliability, and operating flexibility by performing studies and requiring the upgrade of transmission facilities to achieve compliance with accepted national and regional reliability standards. An interconnection system impact study assessing system reliability for each Wind IX site's interconnection to the transmission system is required by MISO. For each Wind IX site, an interconnection system impact study, as

required by MISO, analyzes the site's steady-state impacts,[1] including impacts on regional flowgates, the short-circuit impacts,[2] and the dynamic stability impacts of each Wind IX site.[3] MISO will allow the interconnection only if it can be shown that the interconnection will meet the reliability requirements. An ad hoc group of MISO Transmission Owners and affected non-MISO systems participate in the review process of the MISO studies to ensure the reliability of their transmissions systems is not degraded.

A requirement of MISO is that the generation must be able to deliver its output to the transmission system for a range of system conditions within facility ratings. This ability to deliver generation to the transmission system is commonly referred to as "generation outlet capacity." In addition to demonstrating that "generating outlet capacity" is sufficient to deliver output from each Wind IX site to the transmission system, a study identifying any injection constraints was/will be completed. To the extent that a Project site is requesting Network Resource Interconnection Service ("NRIS") status under the MISO Tariff, a deliverability study would be performed by MISO. Short circuit studies are also performed to

[1] The term "steady-state" refers to the system conditions that persist on the transmission system over a timeframe in which no sudden changes to the operating state of the system are made. Steady-state analyses typically involve simulating various operating conditions on the transmission system (i.e. load levels, generating patterns and status of transmission lines and transformers) to determine whether loading on transmission facilities is within facility loading limits and whether voltages are within acceptable bounds. Steady-state analyses do not include the system conditions that occur during the timeframe immediately following a system disturbance (such as a fault on a transmission line) during which generators are adjusting to the disturbance.

[2] The term "short-circuit" refers to assessing the available fault currents from all units connected to the transmission system during single-line to ground and three-phase faults at various locations on the system, with the intent of identifying if the available fault current exceeds the interrupting rating of the protective devices such as circuit breakers and circuit switchers.

[3] The term "dynamic stability" refers to the system conditions on the transmission system and on generators that occur during and shortly after a system disturbance occurs. Dynamic stability analyses typically involve performing a time-domain simulation over a time-period of between 5 seconds and 20 seconds. These analyses include a determination of generator response to system disturbances with the primary goal of determining whether generators maintain synchronism with each other following the disturbance and determining whether system voltages during the disturbance are within acceptable bounds.

verify whether the existing circuit breakers close to a Project site have sufficient interrupting capability to handle the increased short circuit currents caused by a Project site. These short circuit studies are typically completed by the local Transmission Owner, who provides the study results to MISO. For the existing facilities identified for upgrades or the new facilities identified to mitigate a criteria violation (e.g., the rating of a transmission line is exceeded), Facilities Studies are required to provide detailed reviews of the facilities upgrades and new facilities.

MidAmerican working with MISO has/will ensure that each Wind IX site satisfies the MISO requirements. The MISO studies are completed in coordination with ad hoc study groups, including MidAmerican and other stakeholders. MISO ad hoc study groups have included entities such as Ameren, Associated Electric Cooperative, Central Iowa Power Cooperative, Commonwealth Edison, Corn Belt Power Cooperative, Cedar Falls Utilities, ITC Midwest, Kansas City Power & Light, Missouri River Energy Services, Muscatine Power and Water, Northwest Iowa Power Cooperative, PJM, Nebraska Public Power District, Omaha Public Power District, Southwest Power Pool and Western Area Power Administration. The ad hoc group participates in reviewing and commenting on the study scope, power system models, and preliminary results. If criteria violations are found, the ad hoc group suggests alternatives to mitigate the issue, which may include a scope, cost estimates, and new ratings for upgrades to existing facilities or new facilities. The ad hoc group reviews and comments on the final results and final draft report.

MidAmerican, through its membership in MISO, has/will ensure that, with the transmission system additions and modifications determined by the studies to be required, the interconnection of each Wind IX site: (i) will be consistent with standard utility practices; and (ii) will, therefore, not degrade the adequacy, reliability or operating flexibility of the existing transmission system below existing standards.

Through completion of these MISO studies with input from the ad hoc group of stakeholders, the application of standard utility practice via MISO's BPM 15 and Tariff for GIP and the ad hoc group member's local criteria, and the adherence to the MISO process, MidAmerican has/will ensure that the proposed interconnection will not degrade the adequacy, reliability, or operating flexibility of the existing transmission system from a regional perspective. MidAmerican makes these assurances for the following reasons. First, the interconnection system impact studies for the various Wind IX sites must be completed to MISO's satisfaction before the relevant site can be interconnected. MISO requires extensive studies to demonstrate that reliability criteria are met with the addition of any Project site and MISO will not allow an interconnection for a Project site unless such a demonstration is made. Second, the role of MISO as the independent Transmission Provider ensures that such studies are done on a consistent basis, regardless of the party requesting the interconnection, and in a manner that meets the reliability criteria.

Q. Please describe the role of MISO in the completion of the transmission analyses.

A. I will first provide an overview of the relationship between MidAmerican and MISO. MidAmerican and MISO have entered into an agreement designating MidAmerican as a Transmission Owning Member of the MISO market and assigning functional control of MidAmerican-owned transmission facilities to MISO. In accepting functional control of the MidAmerican transmission facilities, the responsibilities of MISO include evaluating and approving generation interconnections requests to these MidAmerican-owned transmission facilities. As a Transmission Owner in MISO, MidAmerican continues to own its transmission system and participates in the evaluation of the generation interconnections on its transmission system and on the systems of other MISO Transmission Owners. MISO also evaluates and approves transmission service requests, administers an Open Access Same Time Information System ("OASIS") and participates with MidAmerican in the regional transmission planning process.

Specifically, with regard to generation interconnection system impact studies, MISO's BPM 15 and Tariff for GIP documents for generation interconnection procedures provide the requirements for the study. The interconnection procedures provide the detailed coordination requirements, standards and study methods to be used by MISO in completing the generation interconnection studies, including the system impact study, required under the MISO generation interconnection agreement ("GIA"). A MISO GIA is a three-party agreement among MISO, the Transmission Owner, and the Interconnection Customer. Note that the procedures contain requirements relative to meeting the reliability criteria of NERC, MISO Transmission Owners including MidAmerican, and Affected Systems. MidAmerican's own technical

requirements for interconnection contain references to these same procedures, but also add detailed requirements concerning the construction of the interconnection facilities as well as the ongoing operational requirements of the facility.

Q. Please describe MidAmerican's role in the completion of the transmission analyses, including the interconnection system impact study and the short circuit study.

A. While MISO is functionally responsible for completing the transmission analyses, MidAmerican's transmission function personnel are significantly involved in the studies. Under the generation interconnection procedures, MISO forms an ad hoc study group that includes MidAmerican for the interconnection system impact study. The purpose of each ad hoc study group is to obtain the input and review of MISO Transmission Owners including MidAmerican, Affected Systems, and Interconnection Customers at each stage of the study. For the interconnection system impact study, the respective ad hoc study group assists in developing the scope of the study, provides contingency and performance criteria, provides input into the selection of the study models, reviews the study models, provides corrections to the study models, reviews initial results, provides any required updates to facility ratings and model topology, validates potential issues, and assists in developing plans to address the issues identified in the study including providing preliminary cost estimates.

For short circuit studies, the Transmission Owner where the interconnection is requested typically performs the short circuit study. If the Transmission Owner is unable to complete the study, MISO will complete it. If the interconnection request is on MidAmerican's transmission system,

MidAmerican will complete the short circuit study and provide the results to MISO.

The MISO generation interconnection procedures also provide that each Transmission Owner be responsible for completing any required Facilities Studies affecting their transmission facilities. A Facilities Study provides additional details concerning the facilities required to accommodate the interconnection of a generating facility and/or to address system thermal loading, voltage, short circuit, or stability issues identified in the interconnection system impact study or short circuit study. A Facilities Study provides a detailed description of the facility improvements (i.e., transmission system improvements), a cost estimate of the facilities and a schedule for completing the work. MISO generation interconnection procedures include Facilities Study criteria.

Q. Please describe the role of MidAmerican in effecting a generation interconnection.

A. For a generation interconnection on MidAmerican's system, MidAmerican is responsible for constructing the generation interconnection facilities required to accommodate the generation interconnection. MidAmerican is also responsible for constructing any required facility additions or modifications to the MidAmerican system required as a result of the interconnection system impact study and the generation interconnection agreement.

Q. Please summarize the required interconnection facilities and transmission system facilities required for the Wind IX sites.

A. Three wind turbines (7 MW) that are part of the planned Highland site, which was one of the Wind VIII sites, are included in this Wind IX filing. Please see

testimony of Adam Wright for details of the Highland site. Transmission studies enabling the interconnection of the Highland site are included as Schedule 1, which is public record, and as confidential Schedule 2 to my Schuster Exhibit __ (PJS-1). The facilities required to interconnect the site are a new five-breaker ring bus interconnection substation along with two short line taps off an existing line. Three terminals associated with connecting the wind farm's three step-up transformers are included at the new interconnection substation. Relaying upgrades/setting changes are also required at the remote ends of the existing line being tapped. The other site planned for Wind IX is a new site, and site details can be found in the confidential testimony of Adam Wright. The MISO transmission study for this site is not yet completed. New transmission facilities (e.g., the interconnection substation), which may be required to connect the new Wind IX site to the transmission system, and a number of the facilities (e.g., transformer additions/replacements), which may be required to reinforce the transmission system to accommodate the operation of the new Wind IX site, will likely be located on property owned by MidAmerican or another Transmission Owner in Iowa; therefore, no new easements will be required for these facilities. On the other hand, there may also be some facilities, which may be required to reinforce the transmission system to accommodate the operation of the new Wind IX site that will <u>not</u> be located on property owned by MidAmerican or another Transmission Owner in Iowa or already under easement by the owner of the transmission facility. Specific routes for any new transmission system facilities, if such facilities are needed, have yet to be selected. All easements required for such facilities will be obtained in accordance with Chapter 478 of the Code of Iowa,

and 199 IAC 11. Again, this is consistent with some of MidAmerican's prior Wind Power Projects (e.g., Wind VII). All MidAmerican transmission facilities, other than the facilities that will be entirely on MidAmerican property, or otherwise are not subject to the Board's franchising rules, will be addressed in separate Board dockets focused on those facilities pursuant to Chapter 478 of the Code of Iowa.

Q. Please provide additional details concerning the transmission facilities which may be required.

A. The transmission facilities required to interconnect each Wind IX site and deliver its output to the MidAmerican system are determined by the interconnection system impact studies that were/will be completed for the Wind IX sites. Generally, there are four major categories of components of transmission system facility additions, which will be required:

1. Interconnection facilities to connect the Wind IX sites to the existing substation(s)/transmission line(s) in the area of the Wind IX sites.
2. New transmission lines and modifications to existing transmission lines in order to reinforce the transmission system to accommodate increased power flows due to the Wind IX sites.
3. Substation facility additions and modifications at substations other than at the Wind IX sites to provide terminals for new transmission lines or to add transformer capacity to existing substations.
4. Miscellaneous facilities needed to integrate the Wind IX sites into the electric transmission system.

Each category is further discussed below.

Category 1: Transmission Interconnection Facilities

a. This category of transmission system additions includes facilities at the Wind IX sites required to connect the main generator step-up transformers at the Wind IX sites to the existing transmission facilities in the area. In the case of an interconnection at an existing substation, the modifications will provide a new terminal for the connection from the substation to the Wind IX site(s) generator step-up transformer(s).

b. In the case of an interconnection to a transmission line on which there is no existing substation, a new substation will be required to connect into the existing transmission line and provide the connection to the Wind IX site(s) generator step-up transformer(s).

c. In the case of the Wind IX site being located such that an existing substation or transmission line is not in close proximity, a transmission line will be constructed to connect from the Project site to an existing substation or to a new substation constructed to tie into an existing transmission line.

d. Protective relaying, control and communications facilities associated with the facilities described in paragraphs a-c, above.

Category 2: New Transmission Lines and Modifications to Existing Transmission Lines

This category of transmission system additions includes new transmission lines and modifications to existing transmission lines. If the existing transmission lines in the area are not adequate to accommodate the increased power flow due to the Wind IX site(s), new transmission lines and/or modifications to existing

transmission lines will be required. Any new transmission line will be subject to the Board's franchising rules and as such, additional information concerning such transmission line will be submitted in a separate filing in accordance with the Board's rules. Any existing transmission line in Iowa is subject to the Board's franchising rules and as such, additional information concerning any modifications to such transmission line will also be submitted in a separate filing in accordance with the Board's rules.

Category 3: Substation Facilities at Substations Other Than the Wind IX Sites

This category of transmission system additions includes new substations and modifications to existing substations at locations other than the Wind IX sites. These would typically include:

a. New substations that may be required if new transmission line additions are required to connect into existing lines.
b. Substation modifications that may be required to provide a connection from existing substations to new transmission lines.
c. It is also possible that existing substation facilities such as transformers may not be able to accommodate the increased power flow due to the Wind IX sites and in such cases, such transformers would be replaced with higher-capacity transformers and/or additional transformers would be added to the system.
d. Protective relaying and communications facilities associated with the facilities described in paragraphs a-c, above.

Category 4: Miscellaneous Facilities

This category of transmission system additions includes miscellaneous facilities at locations other than the Wind IX sites required to accommodate the additional generation. These facilities include:

a. Breaker replacements due to increased short-circuit currents caused by the Wind IX sites.

b. Capacitor and/or reactor additions to accommodate the reactive power requirements of the Wind IX sites and/or to address voltage issues during steady-state or transient conditions.

c. Power quality devices to address harmonic currents and/or voltage flicker issues.

d. Protective relaying and communications facilities associated with the facilities described in paragraphs a-c, above.

Q. Will the interconnection of the Wind IX sites be consistent with standard utility practices?

A. Yes. MISO's BPM 15 and Tariff for GIP documents for generation interconnection procedures contain interconnection requirements, which are consistent with standard utility practices. I can assure the Board that the proposed interconnection of the Wind IX sites will be accomplished in a manner that is in accordance with MISO's generation interconnection requirements and MidAmerican's planning criteria, which are consistent with standard utility practices.

Q. What will be the impact of the Wind IX sites' proposed interconnections on the existing transmission system?

A. Power system analyses, which focus on the effect of the Wind IX sites on the local and regional transmission systems, identify any transmission facilities for which improvements are required in order to maintain the adequacy and reliability of the existing transmission system once the Wind IX sites are interconnected to that system. A local area analysis will also be prepared if necessary by MidAmerican or the system owner to determine the impacts of the Wind IX sites on the lower voltage electric systems in the area of the Wind IX sites. I can assure the Board that MidAmerican will ensure that there are no detrimental impacts on the local area or regional transmission systems due to the Wind IX sites.

Q. How will the proposed Wind IX sites affect transmission system constraints in and around Iowa?

A. The Wind IX sites were/will be evaluated to determine impacts on the transmission system, both local area and regional systems. The process described earlier in my testimony was/will be followed to assess the impacts of the Wind IX sites. The Board can be assured that the Wind IX sites will not adversely impact the transmission system in and around Iowa. This is the same commitment MidAmerican has made with respect to all of its earlier wind projects, and we have been good to our word.

Q. How will the proposed Wind IX project affect energy deliverability (generation markets) in the upper Midwest, including the ability of others to site wind projects in Iowa?

A. As a condition for interconnection of new generation, the developer must mitigate transmission impacts that violate standards established by MISO, Transmission

Owners, and Affected Systems. Although generation is normally dispatched based on operating costs, some generation, like wind power, is intermittent and operates whenever the wind is adequate for operation and whenever the generation does not adversely affect the system.

MidAmerican generation does not have an advantage over other developers in siting wind projects or any other generation. FERC Order No. 2003 established standardized procedures applicable to all parties applying for interconnection and transmission services. A Transmission Provider, like MISO, or a Transmission Owner, like MidAmerican, may not offer preferential treatment to any organization or individual including MidAmerican generation. As noted above, MISO will ensure that Transmission Owner, including MidAmerican's, and FERC procedures are followed.

Q. Please provide an indication of the transmission uncertainty (in terms of potential curtailments of wind farm output due to transmission limitations) which may be present for the Wind IX sites.

A. The studies MISO performed/performs for the purpose of evaluating the transmission system impacts of the Wind IX sites did/will include appropriate generation interconnection requests in MISO as well as Affected Systems. Likewise, studies performed by these Affected Systems include MISO's appropriate generation interconnection requests. Therefore, the cumulative effects of all interconnection requests are properly evaluated to significantly decrease the probability of multiple transmission providers simultaneously allowing generator interconnections that are not mutually compatible. MISO's studies examined/will examine both the near term and longer-term impacts of a given project on the

transmission system. These actions will help minimize the chance of transmission uncertainty having a negative effect on the Wind IX sites.

In addition to the study processes reducing the potential for curtailments, the market and real-time operations changed when MISO added the ability for a wind generator to become a Dispatchable Intermittent Resource ("DIR") in June 2011. DIR requires a real-time communications link from the wind generator's control system to MISO's control system. Being a DIR enables a wind generator to be automatically dispatched down or back up in real-time based on a resource-level offer price and system conditions. DIR improves congestion management performance by reducing the need for manual curtailments, reduces system regulation burden due to wind variability, and improves overall system control performance. While there are limited exceptions, as of March 2013, MISO requires new wind generators to be DIRs and the Wind IX sites will be registered as DIRs.

A third item that contributes to reducing transmission uncertainty in terms of potential curtailments of wind farm output due to transmission limitations for new wind generation, including the Wind IX sites, is that significant physical improvements to the transmission system, in the form of the MISO Multi-Value Projects ("MVPs"), are being constructed and will be in-service over the next several years. MVPs generally consist of new 345 kV lines including double circuit 345/161 kV lines on existing 161 kV right of way, new 345-161 kV transformers and associated new and expanded substations. The MVP portfolio has many benefits including improving the ability of the transmission system to integrate new generation including wind generation. For example, a 345 kV line

project from Brookings, South Dakota to the Twin Cities will improve reliability including mitigating stability issues in the Minnesota area. MVP #3 and MVP #4 being built by ITC Midwest and MidAmerican across the north part of Iowa (and parts of Minnesota for ITC Midwest's portion of MVP #3) increase the ability of the system to accommodate and transport power across the state while MVP #16, a new 345 kV line from the Quad Cities area to Peoria, Illinois, and MVP #7, a new 345 kV line from Ottumwa to Missouri, will increase the ability to transport power out of the state to the east and to the south.

While the above measures reduce the likelihood of curtailments, the potential for curtailment still exists in response to certain system events, but this can be true of wind or non-wind generation. In addition, to the extent that a wind generation facility and the associated interconnection facilities are complete before all system upgrades identified in the study process are complete, there is the potential for curtailments for said wind generation facility until the system upgrades are completed.

Q. Please summarize your testimony.

A. As with MidAmerican's original 310.5 MW Wind Power Project, the 50 MW Expansion Project, the 222 MW of the 2006-2007 Wind Power Expansion, the 540.8 MW Wind IV Iowa Project, the 108 MW Wind V Iowa Project, the 52.5 MW Wind VI Iowa Project, the 1,000.3 MW Wind VII Iowa Project, the 1,050 MW Wind VIII Iowa Project, GDMEC and WSEC-4, MidAmerican is very aware of the requirements it will have to satisfy in order to interconnect the Wind IX sites with the local and regional transmission systems. I have stated MidAmerican's commitment to meet all pertinent transmission requirements with

respect to the Wind IX sites. This is the same commitment MidAmerican made and fulfilled with respect to the above-mentioned prior wind generation projects. MidAmerican also assures the Board that the interconnection of the Wind IX sites will not degrade the adequacy, reliability, or operating flexibility of the existing transmission system from a regional or a local perspective. Again, this is the commitment MidAmerican made and fulfilled with respect to the above-mentioned prior generation projects. MidAmerican witness Wright has also offered these assurances from the perspective of MidAmerican's senior management.

Q. Does this conclude your testimony?

A. Yes.

STATE OF IOWA)
) ss:
COUNTY OF SCOTT)

I, Peter J. Schuster, being first duly sworn, depose and state that the statements contained in the foregoing prepared direct testimony are true and correct to the best of my knowledge, information and belief, and that such prepared direct testimony constitutes my sworn statement in this proceeding.

/s/ Peter J. Schuster

Subscribed and sworn to before me this 9th day of October, 2014.

/s/ Debbie Sanders
Notary Public – Iowa