

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

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IN RE: :  
: :  
APPLICATION OF MIDAMERICAN : DOCKET NO. RPU-2014- 0002  
ENERGY COMPANY FOR A : :  
DETERMINATION OF RATEMAKING : :  
PRINCIPLES : :  
:

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DIRECT TESTIMONY  
OF  
ADAM L. WRIGHT

- 1 **Q. Please state your name and business address.**
- 2 A. Adam L. Wright. My business address is 4299 Northwest Urbandale Drive,  
3 Urbandale, Iowa 50322.
- 4 **Q. By whom are you employed and in what position?**
- 5 A. I am the Vice President - Wind Generation and Development for MidAmerican  
6 Energy Company (“MidAmerican” or “Company”).
- 7 **Q. Please describe the responsibilities of your current position.**
- 8 A. My responsibilities include all aspects of developing, constructing, operating and  
9 maintaining wind generation assets for MidAmerican. I recently managed the  
10 development and construction of the final 406.9 MW of MidAmerican’s Wind  
11 VII project and am currently managing the 1,050-MW Wind VIII project that was  
12 approved by the Iowa Utilities Board (“Board”) in August 2013 under similar  
13 ratemaking principles as proposed herein. MidAmerican is now proposing to  
14 construct additional economic wind generation—the Wind IX Iowa Project  
15 (“Wind IX” or “Project”), under a new, but mostly similar, set of proposed

1           ratemaking principles, and to be located at two Iowa sites discussed later in my  
2           testimony. We are targeting up to 162 MW (nameplate capacity) of new wind  
3           generation assets under Wind IX.

4   **Q.   Please describe your educational background and business experience.**

5   A.   I received a Bachelor of Science degree in Civil Engineering from the University  
6           of Nebraska-Omaha in December of 2002. In 2003, I joined Northern Natural Gas  
7           Company (“Northern”), a subsidiary of MidAmerican Energy Holdings Company,  
8           as a Pipeline Safety Engineer. I was responsible for ensuring the integrity of  
9           Northern’s pipeline system and developing programs to ensure the pipeline  
10          system was operating in compliance with all federal regulations. In 2004, I was  
11          promoted to Program Manager – Systems Integrity and assumed management  
12          responsibilities for the development and implementation of Northern’s programs  
13          to ensure compliance with the Pipeline Safety Act of 2002, which was signed into  
14          law to improve pipeline integrity in high consequence areas (“HCA”). In 2005, I  
15          became the Manager of Pipeline Safety and HCA, and became responsible for  
16          day-to-day supervision of Northern’s pipeline safety division in addition to the  
17          responsibilities previously described for the Program Manager – Systems  
18          Integrity position. In 2006, I was promoted to Manager – Projects in Northern’s  
19          engineering and construction division and was responsible for managing  
20          Northern’s design, engineering, and project management and construction-  
21          coordination personnel to ensure the on-time completion of engineering capital  
22          construction projects. In 2007, I was promoted to Project Director with  
23          responsibility for the development and construction of pipeline segments to  
24          provide natural gas transportation service to new and existing markets within

1 Northern's service territory. In 2010, I was promoted to Vice President –  
2 Marketing and became responsible for managing the day-to-day supervision of  
3 Northern's marketing department, which focused on long-term contract  
4 negotiations, customer satisfaction and strategic market analysis. In 2012, I was  
5 transferred to MidAmerican where I was named Vice President – Wind  
6 Development. Later in 2012, my title was changed to Vice President – Wind  
7 Generation and Development to better reflect the full scope of responsibilities  
8 assumed with the initial transfer.

### **PURPOSE OF TESTIMONY**

9 **Q. What is the purpose of your testimony?**

10 **A.** The purpose of my testimony is to address the following:

- 11 • Describe the Ratemaking Principles Application, including introducing  
12 MidAmerican's witnesses and a brief outline of the issues they will address.
- 13 • Provide an overview of MidAmerican's case in this docket.
- 14 • Address timing considerations MidAmerican must contend with if it is to  
15 successfully obtain Production Tax Credit ("PTC") benefits for the Project.
- 16 • Explain how wind generation can become a considerable economic  
17 development asset for Iowa by helping to attract new businesses to our state  
18 and encouraging existing businesses to expand.
- 19 • Review MidAmerican's experience with constructing and operating wind  
20 generation to demonstrate MidAmerican's ability to successfully construct  
21 and operate the Project.
- 22 • Address ownership, site description, general description, raw materials used  
23 and wastes created, financial and contractual commitments, general  
24 contractor, operator, mitigation of construction and operating risks, economic  
25 impact, and efficiency and control technologies.
- 26 • Provide information supporting proposed ratemaking principles governing (i)  
27 cost cap (Section 5.2), (ii) size cap (Section 5.3) and (iii) the depreciation life  
28 of Wind IX (Section 5.4).

- 1           • Summarize MidAmerican’s need for Wind IX and why Wind IX is a  
2 reasonable choice for MidAmerican and how it complies with Iowa public  
3 policy as set forth in H.F. 577/H.F. 659.
- 4           • Explain why MidAmerican believes no siting certificate is required for Wind  
5 IX.

**RATEMAKING PRINCIPLES APPLICATION**

6   **Q. Please compare this filing with prior MidAmerican ratemaking principles**  
7   **applications.**

8   A. This application (“Application” or “Ratemaking Principles Application”) largely  
9 draws upon MidAmerican’s previous eight wind ratemaking principles  
10 applications, which the Board approved on August 9, 2013 (RPU-2013-0003),  
11 December 14, 2009 (RPU-2009-0003), August 27, 2008 (RPU-08-4),  
12 June 16, 2008 (RPU-08-2), July 27, 2007 (RPU-07-2), April 18, 2006  
13 (RPU-05-4), January 31, 2005 (RPU-04-3), and October 17, 2003 (RPU-03-1),  
14 addressing ratemaking principle topics such as a cost cap, size cap, depreciation,  
15 return on equity, renewable energy credits and CO<sub>2</sub> credits, cancellation cost  
16 recovery, and Iowa jurisdictional allocation.

17           As in prior applications, this Application considers rules that the Board  
18 had at one time proposed in Docket No. RMU-01-11, but subsequently rejected.<sup>1</sup>  
19 MidAmerican believes that the information provided in the Ratemaking Principles  
20 Application sections (see Volume I of this filing) and in the written direct  
21 testimony (this Volume II), represents a substantial record on which the Board  
22 can favorably rule on this Application.

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<sup>1</sup> The Board subsequently terminated that docket; however, these terminated rules largely address topics pertinent to a ratemaking principles filing.

1 **Q. Briefly describe the testimony filed in support of the Ratemaking Principles**  
2 **Application.**

3 A. Below, I have listed each of MidAmerican's other witnesses, along with a brief  
4 synopsis of their testimony in support of the Ratemaking Principles Application.

5 **Peter J. Schuster**, Supervisor, Electric System Planning. Mr. Schuster testifies  
6 about the process MidAmerican will follow to ensure that Wind IX sites do not  
7 degrade the adequacy, reliability, or operating flexibility of the existing  
8 transmission system from a local and regional perspective.

9 **Neil D. Hammer**, Director, Market Assessment. Mr. Hammer testifies about the  
10 needs Wind IX can fulfill; Wind IX's estimated hours of operation, output and  
11 capacity factor; Wind IX's impact on electric supply reliability in Iowa; Wind  
12 IX's impact on fuel diversity and use of non-traditional supply sources in Iowa;  
13 MidAmerican's consideration of other renewable supply options in comparison to  
14 Wind IX; and a comparison of conventional generation resources to Wind IX.

15 **Michael C. Fehr**, Director of Regulatory Relations. Mr. Fehr will address how  
16 MidAmerican fulfills the energy efficiency requirement for ratemaking principles  
17 eligibility.

18 **Mark C. Yocum**, Director, Supply and Marketing Finance. Mr. Yocum sponsors  
19 portions of Section 2 of the Ratemaking Principles Application concerning  
20 economic aspects of Wind IX. In so doing, Mr. Yocum explains the rate impact  
21 Wind IX is projected to have on Iowa retail customers.

22 **Jennifer A. McIvor**, Vice President, Environmental Programs, Compliance and  
23 Permitting. Ms. McIvor sponsors Section 4.2 of the Ratemaking Principles  
24 Application, and her testimony addresses the environmental impact of Wind IX.

1 In her testimony, Ms. McIvor states that the construction, maintenance and  
2 operation of Wind IX will be consistent with reasonable utilization of air, land,  
3 and water resources considering available technology and the economics of  
4 available alternatives. Ms. McIvor also provides a general description of the value  
5 of renewable energy resources, such as wind power, due to the global climate  
6 initiatives and the Environmental Protection Agency's proposed Clean Power  
7 Plan.

8 **Thomas B. Specketer**, Vice President and Chief Financial Officer. Mr. Specketer  
9 sponsors four ratemaking principles described in Section 5 of the Application:  
10 Iowa jurisdictional cost allocation (Section 5.1), cancellation cost recovery  
11 (Section 5.6), renewable energy and CO<sub>2</sub> credits, etc., (Section 5.7), and federal  
12 production tax credit (Section 5.8).

13 **Dr. James Vander Weide**, President of Financial Strategy Associates, a firm that  
14 provides strategic and financial consulting services to clients in the electric, gas,  
15 insurance, telecommunications, and water industries. Mr. Vander Weide's  
16 testimony supports the determination of an appropriate allowed return on equity  
17 ("ROE") for the ROE ratemaking principle (Section 5.5).

### **OVERVIEW OF THE CASE**

18 **Q. Why has MidAmerican decided to pursue further expansion of wind power**  
19 **in Iowa at this time?**

20 **A.** There are several reasons:

- 21 • The state of Iowa's long-standing support for renewable generation as  
22 evidenced by the ratemaking principles law governing renewable energy and  
23 comments by Governor Branstad.

- 1           • MidAmerican is continuing a strategy to reduce its carbon footprint and other  
2           emissions from generating electricity. To achieve a significant reduction, non-  
3           carbon and low to no-emissions generation, especially wind power, will have  
4           to be a critical part of generation capacity in Iowa. Wind IX offers additional  
5           environmental benefits that MidAmerican witness McIvor addresses in her  
6           testimony.
- 7           • MidAmerican's positive experience with existing wind projects as I describe in  
8           a later section of my testimony.
- 9           • MidAmerican's proposed ratemaking principles regarding size and cost cap  
10          allow MidAmerican to develop Wind IX sites in a timely and advantageous  
11          manner for MidAmerican's customers. I address these ratemaking principles  
12          in a later section of my testimony.
- 13          • MidAmerican wants to be able to utilize the PTC that has been extended to  
14          projects that were under construction before January 1, 2014 and that are  
15          constructed and placed in service before January 1, 2016. Timely approval of  
16          this Application will allow MidAmerican to take full advantage of these  
17          opportunities and tax credits for our customers.
- 18          • Wind IX sites are projected to provide net benefits over their 30-year  
19          depreciable lives for the benefit of our customers, and Wind IX is projected to  
20          essentially pay for itself as addressed in the testimony of MidAmerican  
21          witness Yocum. Thus, Wind IX may help mitigate potential future rate  
22          increases, as well as providing energy with no fuel costs.

- 1           • Wind IX would provide a partial offset to the reduced generation associated  
2           with the expected retirement, no later than April 2016, of over 500 MW of  
3           generation capacity at Neal Energy Center and Walter Scott Energy Center.
- 4           • The desire to further reduce dependence on fossil fuels and customer exposure  
5           to more volatile fuel-cost sources of energy and potential fuel transportation  
6           cost changes as discussed in the testimony of MidAmerican witness Hammer.

7   **Q. You indicated that the state of Iowa encourages the construction of more**  
8   **renewables in Iowa. Please elaborate.**

9   A. Iowa has enacted Section 476.53 of the Iowa Code which, at pertinent points,  
10   states as follows:

11           It is the intent of the general assembly to encourage the development of  
12           renewable electric power generation. It is also the intent of the general  
13           assembly to encourage the use of renewable power to meet local electric  
14           needs and the development of transmission capacity to export wind power  
15           generated in Iowa. (Section 476.53A)

16           The general assembly's intent with regard to the development of electric  
17           power generating and transmission facilities...shall be implemented in a  
18           manner that is cost-effective and compatible with the environmental  
19           policies of the state, as expressed in Title XI. (Section 476.53(2)(a))

20           The general assembly's intent with regard to the reliability of electric  
21           service to Iowa consumers...shall be implemented by considering the  
22           diversity of the types of fuel used to generate electricity, the availability  
23           and reliability of fuel supplies, and the impact of the volatility of fuel  
24           costs. (Section 476.53(2)(b))

25           These provisions of state law make Iowa public policy regarding renewable  
26           generation clear.

27   **Q. You mentioned Governor Branstad's promotion of wind generation. What is**  
28   **the basis for that statement?**

1 A. On December 16, 2013, while attending a commemoration event at Siemens’  
2 blade manufacturing facility in Fort Madison, Iowa, Governor Branstad  
3 commented:

4 “Iowa is a leader in wind generation, and I welcome the opportunity to expand  
5 renewable energy in our great state,”

6 “It is great to have an Iowa-based energy company placing the world’s largest  
7 onshore order for wind turbines in a facility that has produced more than  
8 9,000 blades since the plant began operations in 2007. Together, these  
9 companies continue to greatly benefit Iowa’s economy and demonstrate the  
10 state’s commitment to renewable energy.”<sup>2</sup>

11 “Wind is more than just an important resource for renewable energy in the  
12 state of Iowa. It also provides tremendous economic benefits to the state. Be it  
13 the people working at the Siemens factory, or the farmers that are going to be  
14 getting the benefit of leasing property, or the homeowners that are going to be  
15 able to have this renewable energy source or companies like Facebook or  
16 others that will be utilizing it.”<sup>3</sup>

17 **Q. Please elaborate on the diversity benefit you mentioned.**

18 A. First, I would note the provisions of Iowa law cited above. Clearly, diversification  
19 of utility generation portfolios is a priority of Iowa law. Nationally, the direction  
20 from the Obama Administration and other policy makers is to encourage further  
21 diversity in energy supply with renewables and non-carbon emitting resources.  
22 Additionally, in recent years the cost of coal transportation has increased, and  
23 historically natural gas has been subject to price volatility.

24 Fuel price volatility issues, coupled with the positive experience in  
25 construction and operation of MidAmerican’s existing wind facilities, have  
26 demonstrated the desirability of further diversifying fuel sources, especially non-  
27 carbon emitting resources. Just like it is prudent to diversify a financial portfolio

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<sup>2</sup> [http://www.midamericanenergy.com/wind\\_news.aspx](http://www.midamericanenergy.com/wind_news.aspx)

<sup>3</sup> <http://whotv.com/2013/12/16/wind-energy-siemens-will-make-midamerican-turbines/>

1 in an effort to minimize volatility and risk, it is prudent to diversify sources of  
2 electricity generation for much the same reason. MidAmerican witness Hammer  
3 will discuss portfolio diversity in greater detail.

### **TIMING CONSIDERATIONS**

4 **Q. Please address the timing considerations involved in MidAmerican’s request**  
5 **for approval of Wind IX ratemaking principles.**

6 A. There are multiple considerations with respect to timing. First, the sooner  
7 MidAmerican proceeds, the sooner the state of Iowa begins to realize the  
8 economic development benefits. Second, the PTC benefits are important to  
9 support the Project’s economics. Without prompt action, MidAmerican would not  
10 be in a position to complete the Project so that the sites are qualified to obtain the  
11 PTC. Uncertainty as to whether Wind IX would qualify for such benefits changes  
12 the risk and cost profile substantially, almost certainly resulting in a decision not  
13 to proceed. Third, the sooner MidAmerican can place Wind IX generation into  
14 service, the sooner our customers will realize energy benefits through the Energy  
15 Adjustment Clause.

16 **Q. Please elaborate upon the PTC considerations involved in Wind IX.**

17 A. Based on the recent one-year extension of the PTC granted in January 2013,  
18 projects that were under construction before January 1, 2014, will automatically  
19 qualify for the PTC so long as the facilities are constructed and placed in service  
20 before January 1, 2016. The IRS applies this standard in a way that allows a  
21 developer to meet the “begin construction”, by January 1, 2014, requirement in  
22 more than one way. Developers also may satisfy the “begin construction”  
23 requirement by incurring 5% of the total cost of the project before

1 January 1, 2014, and showing continuous progress toward completion. (Note: Per  
2 the IRS guidance, in order to satisfy the “incur 5% of the total cost” requirement,  
3 the wind developer must before January 1, 2014, also take delivery of the assets  
4 that represent the incurrence of 5% of the total project cost, directly or through a  
5 contractor, or have a reasonable expectation of taking delivery within 3.5 months  
6 of the date of payment). As this guidance makes clear, after “beginning  
7 construction” before January 1, 2014, MidAmerican must make “continuous  
8 effort to advance the project” in order to qualify for the PTC. Further guidance  
9 issued by the IRS in September 2013 stated that projects meeting the “begin  
10 construction” requirement, and that are placed in service before January 1, 2016,  
11 will be deemed to have automatically satisfied the “continuous effort”  
12 requirement. Therefore, it is critical that certainty on ratemaking principles be  
13 provided in time for the required investments and commitments to be made  
14 toward completion of the sites before January 1, 2016. For the purposes of this  
15 Wind IX ratemaking principles application, MidAmerican is assuming that the  
16 PTC is not later extended and that only projects and facilities that qualify for  
17 PTCs under the January 2013 one-year extension will be eligible for PTCs.

18 **Q. How do these requirements impact MidAmerican’s desire to pursue Wind**  
19 **IX?**

20 A. MidAmerican must act swiftly to ensure the Wind IX sites can be fully developed  
21 and that construction is completed before January 1, 2016. In order to fully  
22 develop these sites, which will require significant payments and assumption of  
23 risk under current and future contracts in connection with turbine supply, balance  
24 of plant (“BOP”), interconnection and site development, MidAmerican needs to

1 know the ratemaking principles that would apply if it were to undertake  
2 construction of Wind IX. As it is, MidAmerican may incur some significant risks  
3 (e.g., executing certain options for turbine supply and BOP services, making  
4 down payments to developers for development rights, and making interconnection  
5 payments) prior to obtaining ratemaking principles in order to position the PTC  
6 eligible sites. Given that it takes several weeks to put together a wind ratemaking  
7 principles filing and several additional weeks or months for the Board to complete  
8 its review and issue an order, MidAmerican and its customers could lose  
9 opportunities to take advantage of incremental economical wind projects if we do  
10 not pursue ratemaking principles now. Further, the ratemaking principles for  
11 which MidAmerican seeks approval largely mirror past ratemaking principles that  
12 have been supported by the Office of Consumer Advocate and approved by the  
13 Board.

14 **Q. Why did MidAmerican not file its Ratemaking Principles Application earlier**  
15 **in 2014?**

16 A. It takes considerable time to identify, investigate and evaluate sites for potential  
17 development, not to mention the time it takes to understand and assess the  
18 financial arrangements and risk allocations with MidAmerican's contractual  
19 counterparties that are necessary to yield customer benefits. MidAmerican has  
20 been evaluating potential sites for new or expanded development since late 2013,  
21 but we have not until recently been able to obtain enough information to be able  
22 to assess their viability, including how the IRS plans to interpret safe harbor and  
23 start of construction provisions as applied to the targeted Wind IX sites.  
24 Discussions over the past several months have helped MidAmerican hone in on

1 two sites, which MidAmerican believes will allow the facilities located thereon to  
2 be PTC-qualified, and that can be developed and built before January 1, 2016  
3 with acceptable risk profiles. Approximately 7 MW of Wind IX's wind turbines  
4 would be added as new facilities to the planned Highland wind farm, which is one  
5 of the Wind VIII sites, and the remaining Wind IX turbines would be placed on a  
6 site whose development was commenced by another developer. These two sites  
7 were qualified for PTC based on incurring 5% of the estimated project cost before  
8 January 1, 2014.

9 In addition, MidAmerican has been heavily engaged in construction of the  
10 remainder of the 1,050-MW Wind VIII Iowa Project, and ensuring the Wind VIII  
11 sites are on track for successful completion—tending to these tasks was important  
12 before pursuing additional wind generation. It is now clear, based on review of  
13 how the safe harbor and start of construction provisions will apply, the estimated  
14 development and construction costs, the energy production for the targeted Wind  
15 IX sites, and the construction progress for Wind VIII, that we have viable  
16 opportunities and the resource capacity to undertake added wind generation  
17 (Wind IX) for completion before January 1, 2016.

18 **Q. Please address whether there is an optimal time for the Board's completion**  
19 **of its review of MidAmerican's Ratemaking Principles Application.**

20 A. It would be ideal if the Board could rule on MidAmerican's Ratemaking  
21 Principles Application no later than January 15, 2015. MidAmerican is already  
22 holding discussions with a project developer, wind turbine supplier, potential  
23 balance of plant contractors, and the Midwest ISO, in an effort to be in a position  
24 to qualify these sites for the PTC and to place these Wind IX turbines in service

1 by the PTC automatic qualification deadline (i.e., before January 1, 2016). As  
2 stated above, MidAmerican may have to incur some risk before obtaining  
3 ratemaking principles, but we hope to mitigate those risks by obtaining  
4 ratemaking principles as soon as possible. Once ratemaking principles are put in  
5 place, MidAmerican can make the very significant financial commitments that are  
6 needed to move Wind IX forward. MidAmerican believes the current market  
7 conditions for adding new wind generation that can be qualified for the PTC  
8 under the 2013 extension of the PTC are limited, but MidAmerican believes there  
9 is an opportunity to construct up to 162 MW of additional economical wind  
10 power facilities. To take advantage of this opportunity, however, there will have  
11 to be a number of significant additional payments by MidAmerican relating to  
12 turbine supply, development activities, long lead time substation equipment, and  
13 balance of plant contracting. It is important to minimize risks and costs for our  
14 customers, and for MidAmerican, by receiving definitive ratemaking principles  
15 before very significant costs and commitments must be undertaken and before this  
16 limited economic opportunity is missed. Moreover, timely definitive ratemaking  
17 principles are necessary to ensure these investments and/or construction can  
18 commence in time to be completed by the PTC automatic qualification deadline  
19 of December 31, 2015, which is an economic absolute for delivering the benefits  
20 of Wind IX.

21 In order to take advantage of this limited economic opportunity , ensure  
22 Wind IX can be PTC-qualified, and meet the PTC automatic qualification  
23 deadline, MidAmerican will need to make very significant cost and other  
24 commitments to developers, turbine suppliers, long lead time material suppliers

1 (i.e. substation transformer manufacturers) and balance of plant contractors by  
2 late January 2015, in order to ensure development sites are acquired and activities  
3 are completed, balance of plant services are available and the wind turbine supply  
4 chain is formed to take full advantage of the construction season that will begin in  
5 early spring 2015. Thus, one can see that we have a very tight timeline for  
6 developing Wind IX to deliver the stated benefits to customers. Approval by  
7 January 15, 2015, will enable investments and commitments to be made by the  
8 end of 2014. Without making such investments and commitments, MidAmerican  
9 will lose out on the limited PTC-qualified sites and/or will be at significant risk of  
10 not completing the projects before January 1, 2016, a requirement for automatic  
11 qualification for the PTC, and reducing MidAmerican's ability to deliver  
12 customer benefits.

### **ECONOMIC DEVELOPMENT BENEFITS**

13 **Q. Please elaborate on the economic development benefits.**

14 A. These benefits arise in a number of ways over the 30-year life of the Project. First,  
15 multiple communities will benefit from the added tax base. I estimate such  
16 benefits will be in excess of \$40 million. Second, landowners who host wind  
17 turbines or are otherwise included in the Project will receive annual payments  
18 totaling more than \$30 million. This additional revenue stream makes its way  
19 back into the local economy through incremental purchases to improve farming  
20 operations and make home improvements, or make other purchases that might  
21 have otherwise been deferred. Third, renewable energy is a considerable  
22 economic development asset for Iowa by helping to attract new businesses to our  
23 state and encouraging existing businesses to expand. For example, recent

1 decisions by Facebook to locate a new facility in Altoona, Iowa, and by Google  
2 and Microsoft to expand their Iowa facilities were heavily influenced by having a  
3 significant wind power portfolio on the MidAmerican system. Fourth, there will  
4 be benefits associated with the Wind IX construction workers in the communities  
5 where they spend money and in the communities where wind generator  
6 components are purchased. Local spending in Iowa is estimated to increase by  
7 approximately \$54 million in 2015 during the construction of Wind IX through  
8 construction worker spending and purchases of wind generator components from  
9 Iowa-based manufacturers. Fifth, and lastly, there could be some additional new  
10 permanent jobs arising from Wind IX for maintenance professionals,  
11 approximately one for every 30 MW.

**MIDAMERICAN'S CONSTRUCTION/OPERATING EXPERIENCE  
WITH WIND POWER**

12 **Q. Please describe the wind generation MidAmerican has developed pursuant to**  
13 **prior Board ratemaking principles orders.**

14 A. **Initial Wind Power Project.** The Initial Wind Power Project is comprised of  
15 two parts totaling 310.5 MW: (i) the 160.5 MW Intrepid site (near Schaller,  
16 Iowa), which was fully commissioned and put into commercial operation in 2004;  
17 and (ii) the 150 MW Century site (near Blairsburg, Iowa), which was fully  
18 commissioned and put into commercial operation in 2005.

19 **Expansion Project.** Also in 2005, the 50 MW Expansion Project was  
20 commissioned and placed into commercial operation, with 35 MW installed at the  
21 Century site and 15 MW installed at the Intrepid site.

22 **2006-2007 Wind Project.** In 2006, the 99 MW Victory site (near Arcadia and  
23 Westside, Iowa) was commissioned and placed into commercial operation. The

1 123 MW Pomeroy site (near Pomeroy, Iowa) was commissioned and placed into  
2 commercial operation in 2007.

3 **Wind IV Iowa Project.** The 75 MW Pomeroy II site (near Pomeroy, Iowa), the  
4 first part of this project, was commissioned and placed into commercial operation  
5 in January 2008 (49 of 50 turbines were in commercial operation by  
6 December 31, 2007). A further expansion of 15 MW at the Century site was  
7 commissioned and placed into commercial operation in January 2008. The 75  
8 MW Charles City site (near Charles City, Iowa) was commissioned and placed  
9 into service in April 2008. The 51 MW Pomeroy III expansion was commissioned  
10 and placed into service in October 2008, the 150 MW Carroll site and the 174.8  
11 MW Adair site were both commissioned and placed into service in December  
12 2008.

13 **Wind V Iowa Project.** The 7.5 MW Pomeroy part of this project (near Pomeroy,  
14 Iowa) was commissioned and placed into service in October 2008, and the 100.5  
15 MW Walnut component (near Walnut, Iowa) was commissioned and placed into  
16 service in December 2008.

17 **Wind VI Iowa Project.** The 52.5 MW Walnut site (near Walnut, Iowa) was  
18 commissioned and placed into service in December 2008.

19 **Wind VII Iowa Project.** The Wind VII project is comprised of two phases  
20 totaling 1,000.3 MW: (i) the 593.4 MW component was constructed in 2011  
21 (“Phase I”) and (ii) the 406.9 MW component was constructed in 2012 (“Phase  
22 II”). Phase I was commissioned and placed in service in December 2011 and  
23 consists of the 119.6 MW Laurel site near Laurel, Iowa; the 443.9 MW Rolling  
24 Hills site near Massena, Iowa; and the 29.9 MW expansion of the existing

1 Pomeroy site previously mentioned. Phase II was commissioned and placed in  
2 service in November 2012 and consists of the 200.1 MW Eclipse site near Adair,  
3 Iowa; the 101.2 MW Morning Light site also located near Adair, Iowa; and the  
4 105.6 MW Vienna site near Gladbrook, Iowa.

5 **Wind VIII Iowa Project.** The Wind VIII project was approved by the Board for  
6 installation of up to 1,050 MW and will be completed in tranches through  
7 December 31, 2015. However, due to the contracted turbine nameplate capacity of  
8 2.346 MW per turbine, and the fact that fractions of turbines cannot be installed,  
9 the final turbine layout at each of the Wind VIII project sites will result in a total  
10 nameplate capacity for Wind VIII of 1,051 MW.

11 The 44.6 MW Vienna II project was placed in service in December 2013  
12 in Marshall County, Iowa. An additional 511.4 MW is under construction and on  
13 schedule to be in service by December 31, 2014, consisting of: the 140.8 MW  
14 Wellsburg site in Grundy County, Iowa; the 119.6 MW Macksburg site in  
15 Madison County, Iowa; and the 251 MW Lundgren site in Webster County, Iowa.  
16 The remaining 495 MW also are under construction and will be placed in service  
17 by December 31, 2015, at the Highland site in O'Brien County, Iowa.

18 In the remainder of my testimony, I will refer to the above-mentioned  
19 projects collectively as the "Wind Power Projects".

20 **Q. Please describe MidAmerican's experience with the existing Wind Power**  
21 **Projects, both in terms of construction costs compared to the pre-project cost**  
22 **caps, and in terms of operating experience.**

23 A. MidAmerican has been successful managing construction costs and operations  
24 activities, and MidAmerican was able to stay at or under the respective cost caps.

1 The Wind Power Projects, after normal initial start-up and break-in periods, have  
2 performed as expected in terms of availability and energy production. With  
3 respect to Wind IX, we are confident that if MidAmerican can act quickly and  
4 develop sites that qualify for the PTC, we will be able to add up to 162 MW of  
5 economical wind power facilities that are projected to earn the cost of capital and  
6 provide benefits to our customers. Our projections show that Wind IX will benefit  
7 our customers with no net cost increase to our customers.

### **PROPOSED RULES**

8 **Q. What proposed rules are you addressing?**

9 A. The proposed rules that I address were proposed in Docket No. RMU-01-11, but  
10 were never adopted by the Board. However, the Board has recommended use of  
11 the proposed rules for organizing filings for ratemaking principles. The proposed  
12 rules that I cover are as follows:

- 13 ➤ Ownership (41.3(1)“a”),
- 14 ➤ Site description (41.3(1)“b”)
- 15 ➤ General Description (41.3(1)“c”),
- 16 ➤ Raw Materials Used and Wastes Created (41.3(1)“d”),
- 17 ➤ Financial and Contractual Commitments (41.3(1)“e”),
- 18 ➤ General Contractor (41.3(1)“g”),
- 19 ➤ Operator (41.3(1)“h”),
- 20 ➤ Mitigation of Construction and Operating Risks (41.3(3)),
- 21 ➤ Economic Impact (41.3(4)“a”), and
- 22 ➤ Efficiency and Control Technologies (41.3(4)“e”).

**Ownership (41.3(1)“a”)**

1   **Q.   Please describe the current and proposed rights of ownership in the Wind IX**  
2       **project.**

3   A.   MidAmerican will be the long-term owner/operator of the Wind IX project.  
4       MidAmerican will utilize the turbine vendor during the turbine warranty period  
5       for the vast majority of the operation and maintenance requirements. In the  
6       limited instances where the turbine vendor does not provide the operations and  
7       maintenance services, a third-party service provider will be utilized. There are no  
8       purchased power contracts associated with the Wind IX project.

**Site Descriptions (41.3(1)“b”)**

9   **Q.   Please provide site descriptions.**

10  A.   Wind IX will be sited at locations in Iowa with a good basis for PTC eligibility,  
11       adequate wind resources, and acceptable transmission capabilities and costs. An  
12       expansion by three wind turbines (7 MW) will occur at the planned Highland  
13       wind farm, which is one of the Wind VIII sites. Another site is targeted to be  
14       located in Adams County and will be referred to as Adams Wind Farm. The  
15       Adams Wind Farm will have a targeted nameplate capacity of up to 153.4 MW.  
16       As with the prior Wind Power Projects, Wind IX will be constructed in rural  
17       agricultural areas.

18  **Q.   What remaining work is needed to prepare wind generation sites for**  
19       **installation of Wind IX turbines?**

20  A.   MidAmerican commits itself to obtain all necessary environmental permits and  
21       authorizations required by law or regulation for construction and operation of  
22       Wind IX. Similarly, MidAmerican will obtain all appropriate transmission

1 interconnection, transmission service and other transmission related  
2 authorizations currently and prospectively required prior to operating Wind IX on  
3 the transmission system.

4 To that end, certain environmental studies and assessments, landowner  
5 easements and easement amendments, county permits and authorizations, and  
6 interconnection agreements are required to be completed or obtained in order for  
7 the sites to reach construction ready status. Balance of plant work, such as  
8 installing access roads, collection system cable and wind turbine foundations,  
9 would precede installation of turbines. MidAmerican has successfully performed  
10 these tasks in its prior Wind Power Projects as I previously described. Absent  
11 force majeure circumstances, I am confident MidAmerican can be similarly  
12 successful with respect to Wind IX.

13 **Q. Has any transmission analysis of the Highland site already been completed?**

14 A. An amended and restated generation interconnection agreement for the Highland  
15 site was executed with MISO in July 2014 for a total of 502 MW, which is limited  
16 to 475 MW of net output until anticipated network upgrades are completed in late  
17 2018. Approximately 495 MW are being constructed at the Highland site under  
18 Wind VIII and the remaining approximately 7.0 MW are proposed to be installed  
19 as part of Wind IX. The 7.0 MW at the Highland site are being pursued under  
20 Wind IX to maximize the ultimate interconnection capacity while favorable  
21 project economics are in place, including PTC benefits for customers. While the  
22 injection limit (i.e., amount that can be introduced to the grid) is set a little below  
23 the nameplate capacity of the site, collection line losses, the seasonality of the  
24 wind speeds and scheduled and unscheduled turbine maintenance make exceeding

1 the 475 MW limit unlikely on a consistent or frequent basis. However,  
2 maximizing the interconnection capacity helps ensure that, after turbine  
3 availability and line losses are factored, the most energy and associated PTCs are  
4 captured for customers. Notwithstanding, the injection limit is only temporary and  
5 the site is expected to be released to full injection capabilities after the network  
6 upgrades are completed in late 2018. MidAmerican witness Schuster provides the  
7 Highland transmission analysis as part of his exhibit.

8 **Q. Why is MidAmerican requesting ratemaking principles to address wind**  
9 **installations up to 162 MW?**

10 A. MidAmerican believes there is real merit for customers and the Company in  
11 having ratemaking principles established for up to 162 MW of new wind  
12 generation, with encouraging economics, that will permit MidAmerican to take  
13 advantage of the PTC-qualified sites we have been able to locate. Having  
14 established ratemaking principles for this increment of new wind generation will  
15 permit MidAmerican to add meaningful new, renewable energy resources to be  
16 potentially delivered with no negative impact on customers.

**Facility Description (41.3(1)“c”)**

17 **Q. Please provide a general description of Wind IX including a description of**  
18 **the principal characteristics of the facilities.**

19 A. The source of electric generation for Wind IX will be wind-driven turbines.  
20 Depending on the outcome of MISO interconnection studies, Wind IX has the  
21 potential to reduce MidAmerican’s projected capacity deficits by an amount that  
22 is currently unknown but that will be up to 14.1% of total nameplate capacity, as  
23 covered in the testimony of MidAmerican witness Hammer.

1           Each wind turbine unit will include a wind turbine (with tower, nacelle<sup>4</sup>,  
2           and three blades) and a step-up transformer. The actual turbine size and the  
3           number of installed units will depend on overall project economics and turbine  
4           suitability, but 67 units manufactured by Siemens Energy, Inc., ranging between  
5           2.34 MW to 2.42 MW, are expected to be installed. Each wind turbine is  
6           connected to an electrical collection system. The electrical collection system  
7           gathers the electrical generation on gathering lines each of which individually  
8           collects less than 25 MW. The gathering lines are connected to a project  
9           substation where the electricity is stepped up to a transmission voltage and enters  
10          the transmission grid.

11           The operation of the proposed facilities, equipment rating, and a general  
12          forecast of the usage of Wind IX is described further in my testimony below. It is  
13          expected that approximate annual site capacity factors will be between 36% and  
14          40% for the Project sites depending on the final turbine layout.

15           Finally, I would add that MidAmerican is committed to using good  
16          engineering practices in its construction, maintenance and operation of Wind IX.  
17          MidAmerican will follow the applicable provisions in the publications listed  
18          below as standards of accepted good practice, along with other applicable codes  
19          and standards, unless otherwise ordered by the Board: (a) Iowa Electrical Safety  
20          Code, as defined in 199 IAC 25; (b) National Electrical Code, as defined in 199  
21          IAC 25; and (c) National Electric Safety Code (2007).

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<sup>4</sup> A “nacelle” is the enclosure on top of the tower which houses the main shaft, gearbox, generator, and “up tower” control systems.

**Raw Materials Used and Wastes Created (41.3(1)“d”)**

1   **Q.    What raw materials will be used by the proposed facility to produce**  
2           **electricity?**

3    A.    There will be no principal raw materials used to produce electricity at Wind IX  
4           sites. This is the same as for the prior Wind Power Projects.

5   **Q.    Please describe the wastes created in the production process.**

6    A.    There will be chemicals used for cleaning of equipment and buildings. Wind IX  
7           will be no different than prior Wind Power Projects, and similar to those projects  
8           Wind IX is likely to use a variety of materials including: lubricating and  
9           insulating oils and greases in various closed systems such as power transformers  
10          and rotating machinery; degreasing agents and solvents for cleaning and  
11          maintenance of equipment; and office and janitorial supplies incidental to  
12          operations. All such materials will be used in accordance with all applicable laws  
13          and regulations, and spent lubricants, degreasers and solvents will be collected  
14          and recycled in accordance with applicable regulations and laws.

15   **Q.    What are the annual expected sulfur dioxide, carbon dioxide and nitrogen**  
16          **oxide emissions from the facility, and your plan for acquiring allowances to**  
17          **offset the emissions?**

18   A.    Wind IX is expected to have no air emission or wastewater effluent discharges.  
19          The facilities will have no need for sulfur dioxide, carbon dioxide or nitrogen  
20          oxide emission offsets since they will generate no sulfur dioxide, carbon dioxide  
21          or nitrogen oxide emissions.

1 **Q. Please describe all transportation facilities that are available to serve the**  
2 **proposed facility and any additional facilities that will be needed to deliver**  
3 **materials and remove wastes.**

4 A. It is anticipated that existing transportation facilities will be adequate to serve the  
5 construction and operation of Wind IX just as existing transportation facilities  
6 supported construction and operation activities for the prior Wind Power Projects.  
7 The transportation facilities available to serve the proposed Wind IX project are  
8 likely to include existing harbors, railroads, interstate, state, and local highways,  
9 and local street and road systems. Temporary and/or permanent private access  
10 roads and, in certain cases, public road improvements will be constructed at or  
11 near the Wind IX sites where necessary to provide access from public roads to the  
12 wind turbine locations. The existing interstate, state, and local highways and local  
13 street and road systems will be used for operations, maintenance and waste  
14 disposal transportation as well.

**Financial & Contractual Commitments (41.3(1)“e”)**

15 **Q. Please describe all financial and other contractual commitments undertaken**  
16 **or planned to be undertaken with respect to the proposed facilities.**

17 A. Contracts required for developing and constructing the Wind IX sites are or will  
18 be (some are completed; some are not) similar in nature to those utilized for the  
19 prior Wind Power Projects and will include a site acquisition agreement, a turbine  
20 supply agreement, BOP construction contract(s), and generator interconnection  
21 agreements.

1                   Contracts required to operate the Wind IX sites are similar in nature to  
2 those utilized for the prior Wind Power Projects and will include service and  
3 maintenance, spare parts, land lease, and road maintenance agreements.

4                   Procurement of services and supplies needed for the operation and  
5 maintenance of the Wind IX sites were or will be completed in accordance with  
6 MidAmerican's policies and procedures and in conjunction with MidAmerican's  
7 other generating units in an attempt to obtain cost savings from larger quantity  
8 purchases. MidAmerican will own and operate 100% of Wind IX.

**General Contractor (41.3(1)“g”)**

9   **Q.   Please describe the general contractor.**

10   A.   MidAmerican will serve as its own general contractor for the Wind IX project, but  
11       the BOP scope of work will be performed under an engineer-procure-construct  
12       (“EPC”) arrangement. MidAmerican will negotiate the EPC contract(s) for the  
13       BOP work, the contract for turbine supply, and the contract for purchase of the  
14       pad mounted transformers. Thus, MidAmerican will purchase the turbines, and  
15       contract with one or more contractors to perform the BOP work. The BOP  
16       contractor(s) will be responsible for performing the BOP work, which usually  
17       includes procurement of materials for and construction of the access roads,  
18       underground electrical collection and fiber optic systems, and turbine foundations;  
19       installation of the pad mounted transformers; and erection of the towers and  
20       turbines.

**Plant Operator (41.3(1)“h”)**

21   **Q.   Who will operate Wind IX?**

1 A. MidAmerican will be the long-term operator of Wind IX. MidAmerican will  
2 utilize the turbine vendor or third-party service provider(s) for all or a portion of  
3 the service and maintenance requirements of Wind IX.

**Mitigation of Construction and Operating Risks (41.3(3))**

4 **Q. Please describe the contractual standards with which the contractors must**  
5 **comply to mitigate construction risks.**

6 A. As mentioned previously, the specific contracts for developing and constructing  
7 Wind IX have not all been finalized. However, MidAmerican will use the  
8 experience it has accumulated through construction of the prior Wind Power  
9 Projects to manage construction risk associated with Wind IX by attempting to  
10 transfer the risks of wind turbine siting, equipment supply and construction to the  
11 developers and contractors performing the work. MidAmerican has or expects to  
12 obtain performance guarantees, warranties, indemnities, insurance and other terms  
13 and conditions that assign to the developers, turbine supplier and the BOP  
14 contractor(s) appropriate portions of the risks involved with development and  
15 construction. Appropriate responsibility will be assigned to the turbine supplier  
16 and BOP contractor(s) to perform the work. The turbine supplier will or is  
17 expected to provide guaranteed delivery and commissioning dates and the BOP  
18 contractor(s) are expected to provide guaranteed infrastructure completion dates  
19 in order to receive, erect and commission turbines.

20 In addition, with respect to the construction of the wind turbines'  
21 foundations and towers, MidAmerican intends to make the contractors responsible  
22 for defects in equipment and workmanship during the warranty period.

1                   Part of the work for Wind IX is similar to work MidAmerican performs  
2 and contracts for as part of its day-to-day utility business. Installing underground  
3 and overhead electrical distribution systems is work that MidAmerican has  
4 experience contracting for and doing itself. For these parts of Wind IX,  
5 MidAmerican would utilize types of contractual and risk mitigation practices  
6 similar to what it utilizes in its normal day-to-day activities.

7 **Q. Please continue.**

8 A. MidAmerican expects the developers, turbine supplier and BOP contractor(s) to  
9 agree to completion guarantees such that if the contractor has not completed the  
10 project as a whole (or the contractor's part of the work) by a guaranteed date, the  
11 contractor would be responsible for liquidated damages or subject to breach of  
12 agreement remedies afforded under the agreement and applicable law. The  
13 warranties to be provided by the turbine supplier include or are expected to  
14 include a warranty that the equipment is new, free from defects in design,  
15 materials and workmanship, and that the turbines will meet standard turbine  
16 warranty terms. The turbine supplier and contractors have or are expected to  
17 require certain limitation of liability provisions and MidAmerican has or may  
18 agree to certain of these limitations. The contracts require or are likely to require  
19 that either MidAmerican or the vendor/contractor provide construction all-risk  
20 insurance and other commercial general liability insurance. MidAmerican will  
21 work with its insurance advisors to attempt to obtain the broadest coverages  
22 available at reasonable costs. As in any contractual negotiation, MidAmerican  
23 has, or will attempt to, properly balance the goal of transferring to the contractors,  
24 vendors and/or insurance carriers as much of the risk of equipment supply and

1 construction as possible, consistent with the goal of obtaining the best overall  
2 value.

3 MidAmerican will utilize its own employees and may utilize an owner's  
4 engineer or other third-party resources to provide oversight of construction of  
5 Wind IX. MidAmerican has or will have contractual rights to inspect the work  
6 and intends to exercise this right to monitor and evaluate each contractor's work.  
7 MidAmerican will have employees and representatives at the site during the  
8 construction phase to monitor each contractor's work. MidAmerican requires that  
9 before any work is commenced on the Wind IX sites, the contractor shall have  
10 first provided MidAmerican with a safety program and with a quality assurance  
11 program, both of which are required to be approved by MidAmerican.  
12 MidAmerican will employ other contract management tools and practices so that  
13 it is continually monitoring the contractor's performance (e.g., regular meetings  
14 with contractors and written progress reports).

15 **Q. Please describe the actions that MidAmerican intends to take to mitigate**  
16 **operational risks.**

17 A. MidAmerican will attempt to minimize operational risk in a number of ways.  
18 First, during the procurement, design, development and construction phases of  
19 Wind IX sites, MidAmerican has or will evaluate the short-term and long-term  
20 operational factors for the type and quality of equipment and services that are  
21 being proposed. As part of the design of Wind IX, MidAmerican expects that the  
22 sites and their components would be designed to minimize operational risk while  
23 taking into account the economics of such design. In addition, MidAmerican will  
24 attempt to negotiate contracts with vendors, contractors, consultants and

1 landowners and obtain permits that minimize potential operational risks and costs.  
2 MidAmerican will attempt to ensure that the actual construction and installation  
3 of the facilities complies with the contractual requirements.

4 In the past, MidAmerican contracted with General Electric Company,  
5 Mitsubishi Heavy Industries, LTD, Siemens Energy, Inc., and wind project  
6 service and maintenance companies (such as EDF Renewables Service, Inc.,  
7 formerly enXco Service Corporation) to provide certain services and maintenance  
8 for the prior Wind Power Projects. MidAmerican will utilize the turbine supplier  
9 or a third-party for service and maintenance for all of the service and maintenance  
10 requirements in connection with Wind IX.

**Economic Impact (41.3(4)“a”)**

11 **Q. Please provide information concerning the economic impact of the Wind IX**  
12 **sites within Iowa and communities where Wind IX may be located.**

13 A. The construction, maintenance and operation of Wind IX sites will contribute to  
14 the economic development of the state of Iowa in a manner similar to the prior  
15 Wind Power Projects, and do so in a way that is consistent with the land use and  
16 environmental policies of Iowa. Wind IX will also provide construction jobs  
17 similar to those that were created during construction of the prior Wind Power  
18 Projects. Wind IX will generate meaningful local expenditures during  
19 construction and these will benefit the economies of the communities located near  
20 each Project site. The local and state expenditures associated with installation of  
21 162 MW of wind generation assets could approach \$54 million. The estimated  
22 total payroll is expected to approach approximately \$5 million during  
23 construction. Additionally, a project of this size is estimated to generate property

1 tax revenues for local tax districts in excess of \$40 million over 30 years. In  
2 addition, MidAmerican will be making annual payments to the landowners on  
3 whose property the added wind turbines are located. The turbines are expected to  
4 be located primarily on agricultural land and, as such, the annual payments will  
5 provide another source of income beyond the landowners' farming operations  
6 income.

**Efficiency and Control Technologies (41.3(4)“e”)**

7 **Q. Please compare Wind IX with other feasible sources of supply as it relates to**  
8 **efficiency and control technologies.**

9 A. Wind IX compares favorably with other feasible sources of supply relative to  
10 efficiency and control technologies. Wind IX will consist of wind-driven turbines  
11 of proven technology. Wind turbine design and efficiency continue to improve  
12 and wind turbines in this size range (i.e., 2 MW or larger) are commercially viable  
13 and in use throughout the U.S. and abroad. Manufacturers continue to improve  
14 turbine control and wind energy capture without significantly increasing cost.  
15 Major areas of improvement include blade and rotor aerodynamic designs,  
16 utilization of low-weight, high strength materials for blade construction, and  
17 improved gearbox design and efficiency. Each turbine will have a control system  
18 designed to operate it in the optimal way to produce the most energy from the  
19 available wind resource and to avoid and/or minimize situations that could lead to  
20 damage to the turbine or create other dangers.

21 Wind IX and each turbine will include a modern, state-of-the-art  
22 Supervisory Control and Data Acquisition (“SCADA”) system. This system will  
23 monitor wind conditions, line parameters, and a multitude of individual turbine

1 status and performance indicators, including power output and fault status.  
 2 MidAmerican will be able to track production, availability, maintenance status,  
 3 power performance, outages and resets on appropriate turbine faults.  
 4 MidAmerican will also be able to remotely curtail energy production and perform  
 5 other turbine shutdown scenarios.

**RATEMAKING PRINCIPLES**

6 **Q. What ratemaking principles does MidAmerican seek to have the Board**  
 7 **approve in this docket?**

8 A. MidAmerican is asking that the Board exercise the authority granted it by the  
 9 Iowa Legislature in House File 577, and clarified in House File 659, to approve  
 10 the Wind IX ratemaking principles. The contents of the ratemaking principles  
 11 being requested by MidAmerican are set forth in Section 5 of the Application, and  
 12 in the testimony offered by the sponsoring witnesses. The following table  
 13 indicates the name of the MidAmerican witness who supports each ratemaking  
 14 principle.

<b>Section</b>	<b>Topic</b>	<b>Witness</b>
5.1	Iowa Jurisdictional Allocation	Specketer
5.2	Cost Cap	Wright
5.3	Size Cap	Wright
5.4	Depreciation	Wright
5.5	Return on Equity	VanderWeide
5.6	Cancellation Cost Recovery	Specketer
5.7	Renewable Energy and CO2 Credits, etc.	Specketer
5.8	Federal Production Tax Credit	Specketer

15 **Q. What ratemaking principles are you sponsoring?**

16 A. I sponsor three ratemaking principles; those pertaining to the cost cap, size cap  
 17 and depreciation.

**Cost Cap Ratemaking Principle (Section 5.2)**

1    **Q.    What cost cap ratemaking principle is MidAmerican seeking for Wind IX?**

2    A.    Under the cost cap principle, which I sponsor (Section 5.2), MidAmerican’s  
3           proposed ratemaking principles would apply to all new MidAmerican Wind IX  
4           generating capacity up to 162 MW (nameplate). The cumulative cost cap for  
5           Wind IX is \$1.725 million per MW (AFUDC included). This cost cap compares  
6           favorably to the \$1.825 million per MW (AFUDC included) cost cap the Board  
7           approved in the Wind VIII ratemaking principles proceeding.

8    **Q.    Why is the proposed cumulative cost cap reasonable?**

9    A.    The cost cap is reasonable because it is targeted slightly below the level for Wind  
10          VIII, at a price that provides net customer benefits over the life of the facilities—  
11          i.e., that add no net costs to customers based on our projections. MidAmerican  
12          witness Yocum addresses these projections in more detail. The cost cap is \$100  
13          per kW, or 5.5%, lower than the cost cap approved for MidAmerican’s Wind VIII  
14          project.

15   **Q.    Please continue.**

16   A.    The cost cap for Wind IX has been set at a level that will allow MidAmerican to  
17          earn at a minimum the cost of capital over the life of the assets while providing  
18          incremental renewable energy at no net cost to customers. The details supporting  
19          the economics of Wind IX are discussed further by MidAmerican witness Yocum.  
20          Other factors such as transmission constraints, detailed final site design, contract  
21          negotiations, operational reliability, and final project economics will ultimately  
22          determine the total cost of new wind generation built under these principles. It  
23          should be noted, however, that estimated costs to complete Wind IX, based on

1 existing contracts and market conditions related to contracts still being pursued,  
2 and remaining development and interconnection costs, are anticipated to be under  
3 the cost cap.

**Size Cap Principle (Section 5.3)**

4 **Q. What size cap ratemaking principle is MidAmerican seeking for Wind IX?**

5 A. I am sponsoring MidAmerican's size cap ratemaking principle, Section 5.3 of the  
6 Application which reads as follows:

7 The ratemaking principles shall be applicable to all new MidAmerican  
8 wind capacity up to 162 MW for both sites.

9 **Q. Why is the proposed size cap reasonable?**

10 A. The 162 MW was selected as the maximum potential size for Wind IX based  
11 upon a detailed review of available project sites in Iowa that are in the best  
12 position to be qualified for the PTC and that can be reasonably constructed before  
13 January 1, 2016.

**Depreciation Principle (Section 5.4)**

14 **Q. What information are you sponsoring in the Ratemaking Principles  
15 Application regarding depreciation for Wind IX?**

16 A. The depreciation ratemaking principle I sponsor at Section 5.4 of the Application  
17 allows MidAmerican 30 years to depreciate Wind IX assets. MidAmerican will  
18 reconsider the depreciable life of wind assets for future projects in the event  
19 evidence shows such reconsideration is needed. Technology continues to change  
20 in the wind turbine industry, and it is conceivable the normal design life of the  
21 turbines will change. Again, if that occurs, MidAmerican will undertake an  
22 appropriate analysis. The 30-year depreciation period is consistent with the period  
23 approved by the Board for the Wind VIII project. MidAmerican moved to 30

1 years based upon historical performance of wind turbines in service longer than  
2 30 years across the nation and statements from major suppliers. Technology  
3 continues to improve in the wind turbine industry, and it is reasonable to conclude  
4 that if older wind turbines with less robust designs are still operating after 30  
5 years, newer turbines should be expected to last at least as long. In Wright Exhibit  
6 \_\_ (ALW-1), Schedules 1 and 2, I have provided the statements given to  
7 MidAmerican, by two wind turbine manufacturers, in support of the 30-year  
8 period for depreciation.

### **CASE SUMMARY**

9 **Q. Please summarize the case that the Company has submitted.**

10 A. MidAmerican's testimony and exhibits in this docket, and the sections of the  
11 Application, demonstrate that MidAmerican's proposed Wind IX project meets  
12 the intent of the Iowa energy policy and the state's policy aimed at increasing  
13 development of renewable energy sources in Iowa. As with the original 310.5  
14 MW wind power project and the subsequent wind projects, Wind IX will  
15 contribute to the Company's ability to provide reliable electric service and stable  
16 overall electric rates to Iowa's energy consumers. Wind IX will provide an  
17 economical source of electricity that meets customer needs across a wide range of  
18 fronts, including the following:

- 19 • Environmental compliance needs: Increasing the supply of zero-emissions  
20 electricity to meet expected regulatory requirements limiting carbon and  
21 other emissions and effluents;

- 1           • Customer pricing needs: Providing revenue streams, and avoided costs,  
2           that are likely to offset the costs of Wind IX and provide a source of  
3           energy that can displace energy from carbon-based generation resources;
- 4           • Fuel diversity needs: Reducing dependence on fossil fuels and insulating  
5           customers from more volatile fuel-cost sources of energy and potential  
6           fuel transportation cost changes;
- 7           • Economic development needs: Promoting economic development in Iowa;
- 8           • Iowa energy policy needs: Supporting Iowa’s role as a renewable energy  
9           leader; and
- 10          • Energy needs: Increasing the supply of low cost energy.

11           In addition, Wind IX potentially reduces projected capacity deficits as discussed  
12           by MidAmerican witness Hammer.

13                     MidAmerican’s proposed ratemaking principles regarding the size and  
14           cost caps allow MidAmerican to develop the Wind IX sites in a timely and  
15           advantageous manner for MidAmerican’s customers.

16                     As with the Company’s prior Wind Power Projects, MidAmerican will  
17           comply with the MISO requirements to ensure that the proposed transmission  
18           interconnections and transmission service for Wind IX will not degrade the  
19           adequacy, reliability, or operating flexibility of the existing transmission system  
20           from a regional and a local perspective. MidAmerican witness Schuster describes  
21           the numerous steps and procedures MidAmerican will follow to obtain  
22           appropriate approvals to expand MidAmerican’s Iowa wind facilities in  
23           accordance with this commitment.

24   **Q. Please continue.**

1 A. As MidAmerican’s testimony demonstrates, the construction, maintenance and  
2 operation of Wind IX will materially contribute to the economic development of  
3 the state of Iowa, and do so in a manner that is consistent with the land use and  
4 environmental policies of this state, as was the case with the previous  
5 MidAmerican Wind Power Projects. Wind IX will have a positive impact on  
6 construction jobs, local expenditures, and annual property taxes. Additionally,  
7 Wind IX is expected to be located primarily on agricultural land and, as such,  
8 annual payments will provide another source of income in addition to the income  
9 earned in the landowners’ farming operations.

10 Wind IX will utilize a renewable resource, wind, to create electric energy  
11 with no accompanying air or water emissions. Furthermore, in light of upcoming  
12 carbon regulation limits, Wind IX offers considerable value as a source of electric  
13 generation free of carbon and other emissions. Thus, Wind IX will exceed all state  
14 and federal air and water emission standards and regulations.

15 As the foregoing points demonstrate, Wind IX is a reasonable renewable  
16 resource for MidAmerican to add to its electric system just as the Board found in  
17 eight prior wind ratemaking principles orders for MidAmerican Energy Company,  
18 and one order for Interstate Power and Light Company.

### **SITING CERTIFICATE**

19 **Q. Did MidAmerican obtain a siting certificate for Wind IX?**

20 A. No. MidAmerican does not believe a siting certificate for Wind IX is required,  
21 just as no siting certificate was required for the prior Wind Power Projects. All the  
22 relevant facts, and the law involved, with respect to Wind IX, are  
23 indistinguishable from those on which the declaratory order in Docket No.

1 DRU-03-3 was based. Like the previous wind projects, Wind IX will be built in  
2 accordance with a design that results in no single collector or gathering line  
3 connected to 25 MW or more of nameplate generating capacity. Therefore,  
4 MidAmerican believes it is reasonable to rely upon the declaratory ruling issued  
5 in the earlier docket, pertaining to the initial 310.5 MW wind project (Docket No.  
6 DRU-03-3), with respect to Wind IX.

7 **Q. Does this conclude your pre-filed direct testimony?**

8 A. Yes, it does.

