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-2015-0002**

DIRECT TESTIMONY
OF
WILLIAM J. FEHRMAN

Q. Please state your name and business address.

A. William J. Fehrman. MidAmerican Energy Company, 666 Grand Avenue, Des Moines, IA 50309.

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

A. I am the President and Chief Executive Officer of MidAmerican Energy Company ("MidAmerican" or "Company").

Q. Please describe your education and business experience.

A. I graduated from the University of Nebraska in Lincoln in 1984 with a bachelor's degree in civil engineering. In 1998, I earned a master's degree in business administration from Regis University, Denver, Colorado. I joined Nebraska Public Power District in May 1981, and held various positions across the business including assignments in both fossil and nuclear generation. I was named CEO in January 2003.

I joined Berkshire Hathaway Energy Company in February 2006 to oversee integration activities of the Company's acquisition of PacifiCorp and until September 2007, I was the President of PacifiCorp Energy, with responsibility for the electric generation, commercial and energy trading, construction management and coal-mine

development and operations of the Company. I have been in my current position with MidAmerican since September 2007.

PROJECT OVERVIEW

Q. Please briefly describe the project currently before the Iowa Utilities Board.

A. MidAmerican is seeking Iowa Utilities Board ("Board") approval of ratemaking principles for its Wind X Iowa Project ("Wind X" or "Project"), which will add up to 552 MW of additional wind generation in Iowa. MidAmerican contemplates building such generation at sites in Ida and O'Brien Counties. MidAmerican would commence construction expeditiously after obtaining acceptable ratemaking principles and would plan to place all Wind X generation into service prior to the end of 2016 to assure the Project's qualification for federal production tax credits ("PTC"). If the Project is not completed before January 1, 2017 as the result of a force majeure event or some other issue outside of MidAmerican's control, there is reasonable basis to believe that MidAmerican would be able to demonstrate "continuous effort" to qualify the Project for the PTC. Obtaining the PTC benefits remains critical to MidAmerican's objective of adding cost-effective wind generation. In order to be well positioned to finish all Wind X generation prior to the end of 2016 within the Project's cost estimates, it is important to obtain a ratemaking principles order by September 9, 2015.

Q. Please summarize your key points.

A. MidAmerican is seeking Board approval of ratemaking principles that will:

- Enable MidAmerican to add up to 552 MW of new wind capacity at no net costs to its customers bringing about a balanced outcome for MidAmerican and its customers.

- Approve a new customer revenue credit that will reduce rate base for MidAmerican's highest return coal facility each year until MidAmerican's next rate case. The annual reductions will arise from the energy savings attributable to Wind X energy

production. Further, such rate base reductions increase the potential for revenue sharing as approved in MidAmerican's last rate case.

- Protect MidAmerican's customers from the risk of potentially costly compliance action that may arise from the Clean Power Plan.

- Further reduce MidAmerican's exposure to the risk of fuel price escalation and other considerations specific to fuel consuming sources of generation.

- Result in several hundreds of millions of dollars of economic development benefits within Iowa. (MidAmerican witness Wright elaborates upon these benefits in his testimony).

PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. In addition to the Project Overview above, the purpose of my testimony is to address the following:

- Explain why MidAmerican has decided to pursue additional wind generation, as well as why MidAmerican is choosing to do so now.

- Identify MidAmerican witnesses and the topics each will address.

- Highlight why the Wind X ratemaking principles provide a balanced outcome for MidAmerican's customers and MidAmerican.

- Describe environmental regulatory requirements and Wind X environmental benefits.

- Address how MidAmerican fulfills the energy efficiency requirement for ratemaking principles eligibility.

WHY MORE WIND GENERATION FOR IOWA NOW

Q. With MidAmerican already owning such a large fleet of wind generation, why does MidAmerican need more wind generation?

A. It has been and continues to be MidAmerican's practice to add wind generation when favorable opportunities to provide significant customer benefits are available that fulfill the requirements of Iowa's ratemaking principles law. The Iowa Supreme Court summarized those requirements as follows:

> …we find the general assembly did not intend the "need" requirement of section 476.53 to only include present capacity, but rather the general assembly also intended it to include needs based on other considerations such as fuel diversity, the supply of less expensive energy to consumers, and compliance with future environmental regulations requiring clean energy…
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> …In determining whether MidAmerican satisfied the "need" requirement of section 476.53(4)(c)(2), the Board could consider compliance with future environmental regulations requiring clean energy, fuel diversity, and the supply of less expensive energy to consumers. The record reveals MidAmerican demonstrated Wind VII would defer a capacity deficiency from 2019 to 2020. Furthermore, because of the benefits of Wind VII, MidAmerican is able to project a capacity deficiency of a mere 21 megawatts in 2020.
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> Further, the record contains substantial evidence Wind VII would satisfy a need for an electric supply with lower emissions, especially in light of potential future carbon legislation; a need for an electric supply that produces low-cost energy; a need for an electric supply that enhances fuel diversity; a need for MidAmerican to maintain reasonable prices for its customers; a need to promote economic development in Iowa; and a need to promote the use of renewable energy.[1]

MidAmerican's Wind X Project would advance all of these needs.

First, Wind X brings about long-term benefits to our Iowa customers by reducing energy price volatility, and lowering long-term energy costs. As has been the case in several prior Board-approved MidAmerican wind ratemaking principle filings, the incremental revenues associated with Wind X are projected to more than offset the costs of Wind X over the life of the Project. MidAmerican witness Specketer elaborates upon the economic benefits of Wind X in his testimony.

Second, Wind X generation would not be a source of any emissions regulated by existing or pending Clean Air Act requirements. As I will elaborate upon later in my testimony, Wind X's carbon free generation is likely to be beneficial for future carbon emissions compliance regulations. Such benefits can arise directly if final Environmental Protection Agency ("EPA") Clean Power Plan rules impose tighter emissions

[1] *NextEra Energy Resources LLC v. Iowa Utilities Bd.*, 815 N.W.2d 30 at 40, 42 (2012)

requirements than the proposed rules, or if final rules and an Iowa state compliance plan enable MidAmerican to sell credits for the carbon-free generation. Any such incremental revenues would benefit our Iowa electric retail customers. In addition to its expected benefit under federal environmental requirements, the Iowa ratemaking principles law explicitly promotes renewable energy, such as Wind X.

Third, Wind X enhances fuel diversity. While wind generation has become a major source of electric generation, it is not at the point where it is the largest source of electricity provided to our Iowa customers. Accordingly, as explained in the testimony of MidAmerican witness Hammer, Wind X enhances fuel diversity.

Fourth, the Iowa ratemaking principles law explicitly promotes economic development benefits that can arise from new generation in Iowa. We are experiencing positive impacts in the localities in which the turbines are constructed and operated, in localities hosting wind generation manufacturers, and in locations in which data centers are choosing to locate. We know that major new customers such as Google, Facebook and Microsoft have found MidAmerican's service territory to be a good place to locate because of our extensive carbon-free portfolio and our low energy prices. MidAmerican witness Wright elaborates upon economic development benefits in his direct testimony.

Fifth, more wind generation can be added without adversely impacting electric system reliability. Under the federal mandatory reliability standards as implemented by the Midcontinent Independent System Operator, Inc. and overseen by the Midwest Reliability Organization, MidAmerican's new wind (and any other) generation can be placed into the interconnected grid only if it can be operated in accordance with the reliability standards. MidAmerican, as a transmission owner, adheres to these

requirements. Accordingly, it is only after a determination has been made that new wind generation can be added without disrupting reliability requirements that MidAmerican proceeds to add the new resources to its generation portfolio. MidAmerican witness Gust elaborates upon these reliability considerations in his direct testimony.

Sixth, while wind generation provides modest capacity benefits, the attractiveness of wind generation is due primarily to the other advantages I have addressed above. MidAmerican witness Hammer addresses ways in which Wind X is beneficial to MidAmerican and its customers as part of the Company's generation portfolio.

Q. Is there is an upper limit to the amount of wind generation that should be added to MidAmerican's resource portfolio?

A. No, not at this time. Neither the Midcontinent Independent System Operator (MISO) nor MidAmerican has established a predetermined ratio of other generation to wind generation needed to support wind. However, there are many factors MidAmerican considers when assessing how much wind to add to its generation portfolio. These include:

1. Reliability. From a reliability perspective, MidAmerican follows guidelines and processes established by MISO related to interconnection approval, resource adequacy, and generation dispatch. These rules are established by MISO to maintain reliable operations. The reliability rules span all time frames from the resource planning process to daily operations. Separately, the MISO market provides price transparency for the value of capacity and energy. Both the reliability and market rules influence resource decisions.

MISO's resource adequacy studies and rules establish capacity accreditation rules and planning reserve requirements to meet reliability targets. MISO's rules recognize the intermittent nature of wind and only give a small capacity accreditation credit. As a result, load serving entities must maintain sufficient levels of non-wind resources to meet the MISO resource adequacy requirement.

2. Interconnection Process. The MISO generator interconnection evaluation process as discussed in the testimonies of MidAmerican witnesses Gust and Hammer will limit the amount of wind within Iowa that can be reliably and economically interconnected to the system. Should transmission limitations identified in interconnection studies begin to result in transmission system upgrades that are too costly, or significant curtailments of energy occur, the level of new wind interconnection requests will diminish.

3. Net System Benefits. MidAmerican's net system benefits evaluation considers the decrease in market price that results from adding the zero-cost Wind X project, but also considers the off-setting influences over time resulting from load growth, generation retirements and new resource additions, new transmission infrastructure that may be built to enable broader regional transfers of power, and emissions restrictions for fossil plants. Both the downward price pressure and future system expectations influence the upper limit for wind.

4. Other Variables. MidAmerican has filed evaluations on a case-by-case basis, along with its expectations for these variables, rather than determining a theoretical maximum limit on wind generation additions. Any assumed maximum

limit would evolve over time based upon a wide variety of input parameters. These parameters include the amount of load growth and demand side management, fuel costs, the amount and locations of generation additions and retirements for each fuel type, emissions rules, transmission system capabilities, incentives to promote wind construction such as the PTC, and advancements in generation technologies that reduce costs or increase efficiencies for any and all resource technology fuel types. MidAmerican's resource mix will change over time. For example, coal generation retirements of Walter Scott 1 and 2 and Neal 1 and 2 occur in the 2015-16 period, and Riverside Unit 5 now runs only on gas as of April 1, 2015. Additionally, a wind farm contract is expiring in 2019. Load growth expectations can change over time because it is dependent upon various customer investment decisions.

5. Production Tax Credits. Finally, the PTC is important to support the project's economics. Without the PTC, the economics change and may impact the upper limit on wind resources.

Q. Why is MidAmerican seeking Board approval at this time?

A. There is a delicate balance that takes place that dictates the timing of a filing. On the one hand, it would not make sense for MidAmerican to subject the Board to the time and expense to review a proposed project prior to MidAmerican itself having carefully assessed a project to the point at which the Company can reasonably conclude it has a potentially viable project that fulfills the requirements of Iowa's ratemaking principles law. On the other hand, external factors MidAmerican does not control, such as the term of the federal production tax credit and contract requirements of major vendors, dictate

the project schedule MidAmerican needs to adhere to in order to deliver the project without forfeiting tax credits or incurring additional costs that would diminish project benefits. For these reasons, MidAmerican requests the certainty of advanced ratemaking principles on a timeline that balances sufficient project definition and Board review time with the ability to adhere to a project schedule that does not diminish the project benefits. MidAmerican witness Wright elaborates upon these timing considerations in his direct testimony.

MIDAMERICAN WITNESSES

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

A. Below, I list each of MidAmerican's other witnesses and provide a brief synopsis of their testimony in support of this Ratemaking Principles Application.

Adam L. Wright, Vice President - Wind Generation and Development. Mr. Wright addresses the following matters in his testimony:

- Project timing considerations MidAmerican must contend with, including those relating to obtaining PTC benefits for the Project.
- How wind generation serves as a considerable economic development asset for Iowa by helping to attract new businesses to our state and encouraging existing businesses to expand.
- Reviews MidAmerican's experience with constructing and operating wind generation to demonstrate MidAmerican's ability to successfully construct and operate the Project.
- Addresses the following with respect to Wind X: ownership, site description, general description, raw materials used and wastes created, financial and contractual commitments, general contractor, operator, mitigation of construction and operating risks, economic impact, and efficiency and control technologies.
- Provides information supporting proposed ratemaking principles governing (i) cost cap, (ii) size cap and (iii) the depreciation life of Wind X.

- Explains why MidAmerican believes no siting certificate is required for Wind X.

Thomas B. Specketer, Vice President and Chief Financial Officer. Mr. Specketer sponsors five ratemaking principles: Iowa jurisdictional cost allocation, cancellation cost recovery, renewable energy and CO_2 credits, etc., federal production tax credit and the customer revenue credit. Mr. Specketer also addresses how the risks and benefits of Wind X are balanced between MidAmerican and its customers. In addition, Mr. Specketer addresses various economic aspects of Wind X. In so doing, he explains the rate impact Wind X is projected to have on Iowa retail customers.

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

Jeffery J. Gust, Vice President, Compliance and Standards. Mr. Gust has oversight responsibility for MidAmerican's transmission planning and transmission reliability and regulatory compliance. He testifies about the process MidAmerican will follow to ensure that Wind X sites do not degrade the adequacy, reliability, or operating flexibility of the existing transmission system from a local and regional perspective.

Neil D. Hammer, Director, Market Assessment. Mr. Hammer testifies about multiple ratemaking principle needs Wind X can fulfill. Mr. Hammer also testifies to Wind X's estimated hours of operation, output and capacity factor; Wind X's impact on electric supply reliability in Iowa; and Wind X's impact on fuel diversity and use of non-traditional supply sources in Iowa. MidAmerican's consideration of other renewable

supply options in comparison to Wind X; and a comparison of conventional generation resources to Wind X.

WIND X OFFERS A BALANCED OUTCOME FOR MIDAMERICAN AND ITS CUSTOMERS

Q. Is the Company proposing to include a customer rate credit for Wind X?

A. Yes. We are proposing an automatic customer revenue credit in Wind X, although MidAmerican's proposed Wind X customer credit ratemaking principle works differently than the customer credit ratemaking principle in prior cases.

Q. Did MidAmerican propose a customer credit ratemaking principle in previous wind ratemaking cases?

A: Yes. In Wind VIII MidAmerican proposed and the Board accepted a customer credit ratemaking principle. MidAmerican's reason for proposing this principle was different than the reason we are proposing a customer revenue credit in Wind X. At the time Wind VIII was being considered by the Board, MidAmerican also had an electric rate increase request before the Board. The Company proposed the customer rate credit in the Wind VIII proceeding to demonstrate that Wind VIII was not the cause of the 2013 rate case. MidAmerican did not have a rate case around the time of Wind IX. As a result, MidAmerican did not propose a rate credit reducing its rate recovery below its cost of capital.

Q. Why is MidAmerican proposing a customer revenue credit in Wind X?

A. MidAmerican knows the Board in all rate proceedings takes great interest in making sure the benefits to customers and the Company are balanced. MidAmerican believes the customer revenue credit proposed in this case provide different benefits to customers.

Q. What are the benefits of the customer revenue credits to MidAmerican's customers?

A. In addition to the economic development benefits to the state of Iowa, discussed by Mr. Wright, the variety of benefits addressed by Mr. Hammer, and the environmental benefits described elsewhere in my testimony, when Wind X comes into service it will provide fuel savings. MidAmerican proposes those savings will be used to provide a customer revenue credit through the acceleration of depreciation on the Walter Scott Junior Energy Center Unit 4 (both expense and rate base reduction). This is significant because Walter Scott Junior Energy Center Unit 4 has a higher allowed return on equity than MidAmerican is requesting in this Wind X application. MidAmerican's proposed Wind X customer revenue credit ratemaking principle is thus designed to provide annual customer revenue credit benefits. However, Wind X, unlike Wind IX will not reduce energy adjustment clause costs until the Wind X asset is reflected in rate base in a future rate case.

Q. Please explain why Wind X benefits are balanced.

A. The ratemaking principles ensure there will be no rate increase arising at the time the new generation provides service. Customers are thus protected from any adverse rate impacts typically associated with adding new significant generation to rate base. Further, the customer revenue credit offers long-run benefits to customers, which along with the various incremental revenues arising from Wind X, makes it likely that Wind X over its life will not have any net negative impacts on customers. The balance for MidAmerican is that the ratemaking principles are designed to enable MidAmerican to recover its cost of capital when Wind X is reflected in rates. Witness Specketer provides more detail on the proposed customer revenue credit in his testimony.

ENVIRONMENTAL CONSIDERATIONS

Q. What environmental considerations are you addressing?

A. In the subsections that follow I will address the regulatory requirements applicable to Wind X, environmental impacts to the state and community, impacts of wind energy generation on natural resources, and potential regulatory emissions reduction drivers supporting Wind X.

REGULATORY REQUIREMENTS

Q. Would you identify and briefly describe all of the environmental permits required to construct and operate Wind X?

A. MidAmerican has identified the permits and approvals that will be required to construct and operate each of the sites that will eventually comprise the proposed Project. It is anticipated that each Project site will require very few environmental approvals for construction because of the agricultural nature of the likely turbine locations, and will require no environmental permits for operation. Although the construction contractor will need to obtain a National Pollutant Discharge Elimination System permit from the Iowa Department of Natural Resources ("IDNR") for Project-related construction storm water discharges, it is not anticipated that any other environmental permits will be required.

Q. Will MidAmerican obtain all permits and approvals necessary to construct and operate Wind X?

A. Yes. MidAmerican will obtain all necessary construction and operating permits and approvals in a timely manner, as it has done with respect to all nine (9) of our prior MidAmerican wind projects.

Q. Will MidAmerican meet and abide by all terms and conditions imposed by the necessary permits and approvals?

A. Yes. MidAmerican will abide by all such terms and conditions.

ENVIRONMENTAL IMPACTS TO THE STATE AND COMMUNITY (41.3(4)"b")

Q. Please compare the proposed facilities with other feasible sources of supply as it relates to the environmental impact to the state and communities where the facilities will eventually be located.

A. Wind X compares favorably with other feasible sources of supply as it relates to environmental impacts. MidAmerican will obtain easements for the parcels of land for each of the wind turbines that comprise Wind X and will purchase the land for any necessary substations. Each turbine is expected to occupy an area that is approximately four-tenths (0.4) of an acre. Although a portion of the property where each turbine resides will no longer be available for agricultural production, this will be a relatively small amount of property (i.e., four-tenths of an acre per turbine). Moreover, construction of Wind X will not significantly affect agricultural production in the surrounding area.

Wind X is not expected to have any significant impact on plants or wildlife. Prior to construction of the turbines, each parcel of property will be evaluated to ensure that impacts to any threatened or endangered species or critical habitat from the proposed siting of the facilities on that parcel can be avoided or appropriately minimized. Because the turbine locations are anticipated to be largely on land that is currently being used for agricultural crop production, significant impacts to federal or state endangered or threatened species are not anticipated. In addition, because the turbines will be located on property that maximizes each turbine's wind profile, the turbines will not be in areas with

trees and associated habitat necessary to support avian or bat species. Therefore, it is not anticipated that Wind X will significantly impact avian or bat species or their habitats. Furthermore, because operation of Wind X will also not result in any impact to air quality or water quality, operation of the Project will also not result in any significant impacts to terrestrial and aquatic plants and wildlife. Thus, Wind X is not expected to have any significant negative impact on plants and wildlife and compares favorably to fossil fuel generation as there are no air emissions or wastewater effluent discharges from the Project's generation.

Q. Would you describe MidAmerican's efforts to minimize accidental releases of contaminants from Wind X and any programs or plans that will be employed by the Project in the event an accidental release does occur?

A. MidAmerican will develop and employ a number of emergency response plans to ensure that any spills and releases that may occur are minimized. In addition, MidAmerican will prepare any required Spill Prevention, Control and Countermeasure Plans and Storm Water Pollution Prevention Plans for use at each Project site.

IMPACTS OF WIND ENERGY GENERATION ON NATURAL RESOURCES

Q. What is the expected impact of Wind X on air, land, and water resources?

A. The Project's generation will have no air emissions or wastewater effluent discharges. Construction, maintenance and operation of the Project will be in accordance with planning and zoning requirements. Because each turbine encompasses approximately four-tenths of an acre, only a small amount of agricultural land will be taken out of production, even if all of the turbine sites are currently being utilized as agricultural land. Although other renewable energy resources also have beneficial environmental attributes,

all other renewable resources would likely have greater impacts on the environment. For example, although solar energy would not have any air or water emissions, the land resource required for utility-scale land-based arrays of solar panels and/or collector systems (approximately five acres per installed megawatt) is greater than the land impact from a wind energy resource. Similarly, energy produced from biomass could have a greater impact on land resources than wind energy if it involved the harvesting of an alternative fuel source, such as lumber. Therefore, among the renewable alternative sources, wind energy represents a leading technology for renewable energy with minimal environmental impacts and maximum environmental benefits. Therefore, I conclude that the Project will be consonant with reasonable utilization of air, land, and water resources, considering available technology and the economics and environmental attributes of available renewable and conventional generation alternatives.

Q. Please describe how MidAmerican implements measures to protect sensitive species and habitats.

A. There are a number of plant and animal species protected by federal and state law in Iowa, such as the western prairie fringed orchid, Topeka shiner, least tern, piping plover, and bald eagle. MidAmerican utilizes the preconstruction survey process to identify potential habitat for these species and designs the project layout to avoid impacts. For example, western prairie fringed orchid is often found in native prairie remnants. In order to avoid impacts to this protected species, MidAmerican does not site wind turbines or associated project infrastructure in this habitat type.

When species and their habitats cannot be completely avoided, MidAmerican works with the U.S Fish and Wildlife Service ("USFWS") and the IDNR to develop

appropriate measures that will minimize the impacts of wind generation facilities on protected species. There are three statutes which afford protection to sensitive species in the U.S.: the Migratory Bird Treaty Act ("MBTA") of 1918; the Bald and Golden Eagle Protection Act ("BGEPA") of 1940; and the Endangered Species Act ("ESA") of 1973. These statutes each prohibit unauthorized harm to protected species. All but three native North American migratory avian species are protected by the MBTA, and eagles are afforded additional protection under the BGEPA. The primary ESA-protected species of concern for wind projects include migratory bats. In Iowa, the USFWS has afforded protection to two bat species. The Indiana bat is listed as endangered and has the potential to occur throughout southern Iowa. On April 2, 2015, the USFWS designated the northern long-eared bat as a threatened species, and all counties in Iowa have been identified as potentially containing habitat for this species.

In accordance with the USFWS' 2012 Land-Based Wind Energy Guidelines and 2013 Eagle Conservation Plan Guidance, MidAmerican thoroughly evaluates proposed project sites, including the Wind X sites, to determine the risk the Project might pose to protected avian and bat species. These efforts include robust preconstruction surveys to establish baseline avian and bat presence, as well as at least one year of post-construction mortality monitoring. The data gathered from these surveys are used to develop site-specific bird and bat conservation strategy plans that document MidAmerican's efforts to avoid impacts to protected species where possible, and to mitigate impacts which cannot be avoided.

MidAmerican works cooperatively with the USFWS and IDNR to avoid and minimize such risks. In January 2015, MidAmerican provided support and a pledge of

matching or in-kind contributions for the State of Iowa's planning assistance grant proposal, submitted under § 6 of the ESA. If approved, the grant will fund baseline studies to support the development of a multi-species habitat conservation plan for MidAmerican's Iowa wind facilities.

POTENTIAL REGULATORY EMISSIONS REDUCTION DRIVERS

Q. What is the status of federal regulations to limit greenhouse gas emissions from the electric generating sector?

A. EPA proposed a set of three rules in 2014 that would address greenhouse gas emissions, primarily carbon dioxide ("CO_2"), from electric generating units. The Carbon Pollution Standard for New Power Plants[2] would establish new source performance standards for greenhouse gases for all new fossil fuel-fired power plants greater than 25 megawatts and would affect all fossil fuels, including coal and natural gas. The Carbon Pollution Emission Guidelines for Modified and Reconstructed Sources address greenhouse gas emissions from modified or reconstructed fossil-fueled generating facilities.[3] Finally, EPA also proposed greenhouse gas emissions standards for existing power plants, often referred to as the "Clean Power Plan."[4] This rule would set unique carbon dioxide emissions intensity targets (i.e., pounds of carbon dioxide per megawatt-hour) for each state. Each of these rules is still in the proposed-rule stage, although the public comment period has closed on all three rules. EPA's most recent regulatory agenda indicates the agency will finalize the modified-sources rule in June 2015 and the existing-sources rule in July 2015. EPA has not identified an expected date for the final new-sources rule.

[2] 79 Fed. Reg. 5, 1430 *et seq*.
[3] Carbon Pollution Emission Guidelines for Modified and Reconstructed Sources: Electric Utility Generating Units, 79 Fed. Reg. 117, 34,960 *et seq.*
[4] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, which the agency calls the "Clean Power Plan," 79 Fed. Reg. 117, 34,830 *et seq.*

Q. Please explain how emission standards were developed under the proposed Clean Power Plan.

A. The EPA's proposed Clean Power Plan calculated state-specific emission rate targets to be achieved based on four building blocks that it determined comprised the "Best System of Emission Reduction."[5] The four building blocks include: (1) an average 6% heat rate improvement at existing coal-fueled generating facilities, based on a 2% improvement from equipment upgrades and a 4% improvement due to operational changes; (2) increased utilization of existing combined-cycle natural gas-fueled generating facilities up to 70% capacity factors; (3) increased deployment of renewable and non-carbon generating resources, like Wind X; and (4) increased end-use energy efficiency. Under the EPA's June 2014 proposal, states may utilize any measure, including any combination of the four building blocks, to achieve the specified emission reduction goals, with an initial implementation period of 2020-2029 and the final goal to be achieved by 2030.

Q. Has MidAmerican examined using each of the building blocks and how they could be used toward achieving compliance?

A. Yes. Overall, MidAmerican supports the use of the building blocks but they are not without issues. MidAmerican has determined that building block 3 – increased utilization of renewables and other non-carbon generating resources – provides the most significant potential to comply with the Clean Power Plan.

MidAmerican has an economic incentive to improve operating efficiencies and therefore already exercises best operating practices at its existing units. In addition, the Company has already completed significant heat rate improvement projects at a number

[5] Clean Air Act § 111(d). 42 U.S.C. § 7411(d). *See also* 40 Code of Federal Regulations § 60.22(b)(5).

of its existing coal-fueled units. Under current environmental regulatory requirements, MidAmerican evaluates heat rate improvement projects and will implement them when they are environmentally and economically justified. MidAmerican's experience with these projects is that a 2% improvement is not achievable in most instances. MidAmerican has seen approximately 1% improvements in heat rate associated with plant efficient projects. However, the Company has also completed significant investments in emissions controls across its fleet and the operation of these controls requires the use of additional station power, thus serving to reduce overall plant efficiency.

Implementation of building block 2 would require significant changes to the way generating units are currently dispatched. Today, units are dispatched under an economic framework in order of lowest cost to highest cost; using any other dispatch model would result in an increased cost of energy. Existing natural gas combined cycle ("NGCC") units have historically not been the least-cost resource in an economic dispatch model.

MidAmerican has a long history successfully implementing customer energy efficiency plans and believes energy efficiency, the basis of building block 4, has an important role to play in reducing load and thus avoiding carbon emissions. However, as contemplated by EPA, MidAmerican has identified concerns with the inclusion of energy efficiency programs in a state's Clean Power Plan compliance program, including the federal oversight and enforcement of a program traditionally within the purview of the states.

Building block 3, particularly the development of additional wind generation, is the only building block that MidAmerican can implement today at no net cost to

customers and which will significantly contribute to the Company's compliance with the Clean Power Plan. The current ability to add renewables at no net cost to customers is in part due to the availability of production tax credits.

Q. How did EPA approach renewable generating sources in the proposed Clean Power Plan?

A. EPA has proposed three alternative calculations to establish renewable energy generation targets for the states' emissions goals under the Clean Power Plan. In the initial proposal, EPA established renewable energy targets for each state based on a "best practices" scenario, where state renewable generation targets are established from the average Renewable Portfolio Standard requirements, in 2020, for all states in a specified region. The best practices approach resulted in a 15% renewable energy generation target for Iowa and factored into EPA's proposed 2030 emission standard of 1,301 pounds of CO_2 per megawatt-hour ("lb/MWh"). As an alternative, EPA proposed to establish renewable generation targets based on a state's technical and economic potential for renewable energy, which resulted in a 54% renewable energy generation target for Iowa and could lead to a 2030 emission standard as low as 800 lb/MWh. Finally, in an October 30, 2014, Notice of Data Availability,[6] EPA proposed a "regionalized" approach that establishes state renewable generation targets based on the renewable energy potential for the region in which a state is located. The regional potential could be allocated based on either a state's 2012 percent retail sales or a state's 2012 percent generation within that region. In Iowa, this regionalized approach results in renewable generation targets of approximately 20% and 26%, respectively. Regardless of the renewables calculation methodology selected by EPA, the proposed rule would allow states to include all generated wind

[6] 79 Fed. Reg. 64543 *et seq.*

energy in its compliance demonstrations beginning in 2020. MidAmerican expects that energy generated from Wind X (i.e., megawatt-hours), if built, could be used in the Company's compliance demonstration with a final rule.

Q. How does MidAmerican's CO_2 emission rate compare to the potential 2030 emissions standards you described above?

A. Under the methodologies considered by EPA to set emissions standards, as the Clean Power Plan is currently proposed, Iowa's 2030 emission rate target ranges between 800 and 1,301 lb/MWh. In 2017, without the construction of Wind X, MidAmerican's CO_2 emission rate is expected to be approximately 1,003 lb/MWh. With the addition of Wind X, MidAmerican's 2017 CO_2 emission rate is expected to be approximately 940 lb/MWh. These numbers assume that MidAmerican retains all environmental attributes associated with wind generation. If MidAmerican sells the environmental attributes embodied in renewable energy credits ("RECs"), the Company's emission rate would be adjusted accordingly.

Q. How might Wind X be coordinated with the requirements of the Clean Power Plan?

A. MidAmerican expects that the Wind X Project will be beneficial in supporting the Company's compliance with the rule, either by directly utilizing generation from Wind X towards MidAmerican's compliance demonstrations under the Clean Power Plan, or, if Wind X is not needed for MidAmerican's own compliance, by selling the environmental attributes of Wind X to others to use in their own compliance demonstrations.[7] For example, EPA requested comments on how existing markets for RECs might be utilized for compliance demonstrations. MidAmerican supported a compliance mechanism that allows states to utilize REC trading programs. A REC trading mechanism would allow

[7] Revenues from REC sales are above the line, increasing the potential for revenue sharing.

the REC-generator to surrender RECs to demonstrate its own compliance, or to sell RECs to another regulated entity for surrender in support of that entity's compliance demonstration.

Q. What is your expectation regarding further governmental restrictions on air emissions from fossil-fueled generation?

A. I believe the trend line clearly points toward a continued tightening of the restrictions over time. While the future of legislative changes remains unclear, the actions of the Executive Branch continue to signal growing restrictions on fossil-fueled generation.

Q. How is MidAmerican addressing climate change regulation?

A. Climate change represents a major policy issue that will have future, potentially significant, implications for MidAmerican and every other generator of electricity. MidAmerican follows these issues closely to determine the impact on its facilities and planning for future facilities. MidAmerican supports the development of a responsible climate policy that addresses global climate change and reduces greenhouse gas emissions while ensuring reasonably priced energy for consumers.

MidAmerican recently completed emissions reductions projects at two of its facilities, Neal Energy Center Unit 3 and Neal Energy Center Unit 4. These activities included projects to reduce greenhouse gas emissions via plant efficiency improvements incorporated into the air quality control system permits issued by the IDNR. In order to meet certain environmental requirements, MidAmerican retired Walter Scott Energy Center Units 1 and 2 on March 31, 2015, and limited Riverside Generating Station to natural gas operations on March 30, 2015. MidAmerican will also retire Neal Energy Center Units 1 and 2 by April 2016.

In addition to these projects, MidAmerican is investing in renewable generation sources and energy efficiency programs, both of which assist in mitigating risk associated with climate change regulation, while meeting customer needs.

Q. How would a limit on carbon impact different generation resources?

A. The greater the carbon intensity (i.e., pounds of carbon dioxide emitted per MWh) of the generating resource, the greater the impact on the cost of generation. By way of comparison, coal resources produce approximately one ton of carbon dioxide per megawatt hour, gas resources produce approximately a half a ton of carbon dioxide per megawatt hour, and wind resources produce no carbon dioxide. Because wind generation is a zero-emission source of generation, any form of carbon limits will increase its relative competitive value and customer benefits as compared to carbon-emitting sources of generation. In addition, energy generated by a zero-carbon emission source may help improve a fleet's overall carbon intensity.

Q. Are there regulations in addition to potential carbon restraints that affect fossil-fueled generation?

A. Yes. There are three additional rules with significant impacts to fossil-fueled generation, including the Mercury and Air Toxics Standards ("MATS"), the proposed coal combustion residuals ("CCR") rule, and the proposed Effluent Limitation Guidelines ("ELGs") rule.

Mercury and Air Toxics Standards. On February 16, 2012, EPA finalized the MATS for fossil-fueled electric generating sources, and established maximum achievable control technology limits on emissions of mercury, non-mercury metals, and acid gases. The standards target a 90% reduction in mercury emissions, an 88% reduction in acid gas

emissions, and a 41% reduction in sulfur dioxide emissions beyond those reductions expected from interstate-transport rules for air emissions. The MATS limits established by EPA are based on control efficiencies expected from the installation of scrubbers for sulfur dioxide and acid gases, baghouses for metals, and activated carbon injection for mercury. The EPA expects facilities to comply with the new standards through a combination of strategies, including the use of existing emission controls, upgrades to existing controls, installation of new emission controls, and fuel switching. In the event that one of these strategies is not technically or economically feasible, the unit must be shutdown.

The MATS rule took effect April 16, 2015. However, the U.S. Supreme Court heard arguments on a narrow challenge of the rule March 23, 2015.[8] The issue before the court was whether EPA appropriately considered costs in its development of the rule. A decision in the case is expected in June 2015.

Coal Combustion Residuals rule. On April 17, 2015, the EPA published its final coal combustion residuals rule, which regulates coal combustion residuals as non-hazardous waste under Subtitle D of the Resource Conservation and Recovery Act. The rule establishes minimum national standards for the management and disposal of coal combustion residuals. Coal combustion residuals are generally managed in either dry landfills or in surface impoundments. The rule also establishes design and operating criteria for these management units (i.e., landfills, impoundments). If the criteria cannot be met in the timeframes specified in the rule, the management units must cease operation and close.

[8] *Murray Energy v. EPA*, No. 14-1112 and 14-1151. D.C. Circuit Court of Appeals.

Effluent Limitation Guidelines proposed rule. On April 19, 2013, the Environmental Protection Agency released a prepublication copy of its proposed Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Industry, which would update wastewater discharge rules and limits. Nuclear, coal, oil and natural gas-fueled power plants that generate more than 50 megawatts of power would be required to limit discharges of pollutants from a variety of waste streams under the proposed effluent guidelines. The effluent guidelines would address mercury, zinc, phosphorous, selenium and other pollutants discharges to surface waters through wastewater, coal ash ponds and flue gas desulfurization systems. The proposed limits would be phased in between 2017 and 2022. The proposed rule would establish new or additional requirements for wastewater from flue gas desulfurization, fly ash, bottom ash, flue gas mercury control, combustion residual leachate from landfills and surface impoundments, nonchemical metal cleaning wastes, and gasification of fuels such as coal and petroleum coke. EPA presented four preferred alternatives for existing power plants and one preferred alternative for controlling discharges from new power plants. EPA intends to finalize the ELG rule by September 2015.

Q. How will these rules affect wind generation?

A. Because wind generation is a zero-emission and zero-discharge source of generation, these rules will increase wind generation's relative competitive value and customer benefits as compared to fossil-fueled sources of generation.

Q. Is it prudent to invest in more wind generation now?

A. Yes. As noted in environmental testimony in MidAmerican's earlier wind projects, we have anticipated a carbon-constrained future and we have worked to diversify our

generating fleet with additional low and zero-carbon emitting sources. Carbon constraints, as well as the requirements applicable to fossil-fueled generating units under the regulations described above, will only raise the value of wind generation compared to other sources of generation that produce emissions, such as coal-fueled or gas-fueled electric generating units. This is readily apparent in EPA's proposed Clean Power Plan, under which states have the flexibility to count renewable energy generation towards compliance with their emission targets. Although the final content of future carbon regulations is not yet known, preparing for future carbon constraints, in whatever form they take, by expanding MidAmerican's wind portfolio now is a prudent investment.

Q. Please summarize the environmental impact that you believe will result from the construction of Wind X.

A. I believe the Project will have a minimal impact on the environment, and represents a sound investment in preparation for future carbon and other environmental constraints.

ENERGY EFFICIENCY PLAN

Q. Iowa Code §476.6 (19) (2015) requires that MidAmerican have in effect a Board-approved Energy Efficiency Plan, for its electric customers, in order to have a ratemaking principles application considered by the Board. Please describe whether MidAmerican satisfies this requirement.

A. MidAmerican fully satisfies this requirement. MidAmerican has in effect a five-year, Board-approved Energy Efficiency Plan ("Plan"). The Plan was approved by the Board in Docket No. EEP-2012-0002 on December 16, 2013, with the requirement that MidAmerican document any program specific changes in annual savings impacts and update the total savings impacts by year due to the Settlement Agreement and Board

Order. On January 31, 2014, MidAmerican filed its compliance filing pursuant to the Board's Order issued December 16, 2013. On February 24, 2014, MidAmerican filed a revision to its original Energy Efficiency Plan as submitted February 1, 2013 to incorporate changes to the program budgets and savings and other changes resulting from the Settlement Agreement and December 16, 2013 Board Order. MidAmerican subsequently filed an updated benefit-cost study on May 5, 2014. On June 10, 2014, the Board issued an order accepting the compliance information. The Plan is currently in its second year of implementation, so only one year of actual annual results from the Plan is available at this time. The Plan is in effect for the five-year period of 2014 through and including 2018.

Q. Does MidAmerican anticipate making the expenditures identified in the Plan to help fulfill the approved energy efficiency program goals?

A. MidAmerican does anticipate making the expenditures identified in the five-year Plan. MidAmerican currently provides Board-approved energy efficiency measures, as outlined in the Plan, to its customers and will continue to do so through the entire five-year period the Plan is in effect. MidAmerican will also endeavor to hit the annual expenditure targets during the five-year period the Plan is in effect. Because participation is not completely controllable, it is expected participation, savings, and expenditures in some years will over-perform and in other years will underperform relative to the goal.

Fehrman Exhibit __ (WJF-1), Schedule 1 provides a program-by-program description of MidAmerican's Plan electric budget and planned electric savings for 2015, the second year of the current Plan approved in Docket No. EEP-2012-0002. Schedule 1

demonstrates MidAmerican's ongoing commitment to meaningful and substantial energy efficiency and demand management efforts.

Q. How do expenditures for calendar year 2014 for electric customers compare with the level budgeted in MidAmerican's Energy Efficiency Plan?

A. 2014 was the first year of the current Plan approved in Docket No. EEP-2012-0002. MidAmerican's actual Plan expenditures of $65,811,652 were below the 2014 Plan budget for electric customers by $5,088,258 (7%) for the year 2014 and peak kW savings were 319,284 kW, which is 92% of Plan savings; however, Plan kWh savings for 2014 were 286,504,513 kWh or 118% of the 2014 goal. In Fehrman Exhibit __ (WJF-1), Schedule 1, I have provided an electric energy efficiency program-by-program comparison of MidAmerican's actual Plan expenditures vs. budget for 2014. I believe this clearly demonstrates that MidAmerican effectively implemented the Plan.

CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, it does.

STATE OF IOWA)
) ss:
COUNTY OF POLK)

I, William J. Fehrman, 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/William J. Fehrman
William J. Fehrman

Subscribed and sworn to before me this 30th day of April 2015.

/s/ Sherri R. Long
Notary Public – Iowa