

- 1.0 **FILED WITH** General Information 41.3(1)  
**Executive Secretary**
- 1.1 **October 10, 2014**  
Ownership **IOWA UTILITIES BOARD** 41.3(1)a

The proposed construction and operation of the additional wind generation, the Wind IX Iowa Project (“Wind IX”), will be owned solely by MidAmerican Energy Company (“MidAmerican”). The locations for the added wind turbines and ancillary facilities that will comprise the Wind IX sites are discussed in the testimony of MidAmerican witness Adam Wright. MidAmerican expects that the property upon which the added turbines and related collector feeders will be located will largely be that of new landowners with whom we’ve not dealt with before. MidAmerican expects to obtain rights to situate the Wind IX turbines, related equipment, and access roads on such land by means of voluntary easements. Additional collector substations will be constructed for Wind IX and will be located on property which MidAmerican will own in fee title.

There are no current power purchase contracts or commitments with respect to Wind IX.

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Ownership of Wind IX.

1.2 Site Description 41.3(1)b

The sites for the Wind IX Iowa Project (“Wind IX”) are generally described in the testimony of MidAmerican witness Adam Wright. However, the final site boundaries have not been determined and, therefore, no legal descriptions are yet available for the Wind IX sites. Although the final site boundaries and turbine arrays have not been finalized, it is expected that the turbine locations will be predominantly, if not entirely, located on agriculture land.

The Wind IX sites have been selected based on their PTC qualification status, wind resource potential and proximity to transmission lines that can support the generation being produced by Wind IX. MidAmerican has appropriately considered interconnection and transmission service costs as part of its site selection process.

In addition, new agreements or amendments to existing agreements must be obtained from landowners in order to construct Wind IX sites on their property. Final site boundaries and turbine arrays cannot be determined until such time as options or easements (or as the same are amended) are in place for the majority of a site.

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Site Description for Wind IX.

1.3 Facility Description

41.3(1)c

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Facility Description of the Wind IX Iowa Project (“Wind IX”).

1.3.1 General

The source of electric generation for Wind IX will be wind-driven turbines. The actual turbine size and the number of installed units for each Wind IX site will depend on the overall Project site economics and turbine availability. However, turbine sizes are expected to range from 2.34 MW to 2.42 MW. The Wind IX sites will be developed and likely constructed in segments and will be brought on-line as wind turbines and interconnection facilities are completed. The MISO transmission studies for Wind IX are not yet complete; therefore, the amount of MISO-accredited capacity that will result from Wind IX is not yet capable of determination.<sup>1</sup> See the testimony of MidAmerican witness Neil Hammer for more detail on this. Each wind turbine site will include a wind turbine, tower, step-up transformer, electric collection system and an access road.

The projected hours of operation, energy output and capacity factors for Wind IX will depend on factors such as the final turbine layout plan, selection of sites and turbines. The Wind IX sites are projected to operate over 7,875 hours annually at an overall average capacity factor of approximately 36.8% when fully developed.<sup>2</sup>

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<sup>1</sup> MISO, however, is unlikely to allow more than 14.1% of nameplate capacity based on MISO’s system wide average value reported in the report “MISO Planning Year 2014-2015 Wind Capacity Credit,” dated December 2013.

<sup>2</sup> The operation of a wind turbine will vary from one year to another based on the wind resource, scheduled maintenance, forced outages and possible transmission system operating guides.

### 1.3.2 Plant Systems

#### Wind Turbines

Each wind turbine has a nacelle (i.e., enclosure) to which the hub attaches, and which houses the gearbox, bearings, braking system, generator and other equipment and parts. Each turbine will have a controller system that attempts to optimize the performance of the wind turbine and attempts to minimize the situations that could cause damage to the wind turbine or create a dangerous situation. Each wind turbine will have three rotor blades. The blades are constructed of lightweight materials (e.g., carbon fiber, fiberglass, epoxy, wood), have a smooth surface and are designed to be aerodynamically efficient. Electricity is produced from a generator located in the nacelle, and it is transmitted through cables within the tower to a step-up transformer located adjacent to the tower.

#### Tower

The wind turbine will be mounted on top of a tubular steel tower (not a lattice tower). The tower is attached to a concrete foundation.

#### Step-up Transformer

The electrical cables transmitting the energy from the generator in the nacelle run down the tower, exit the tower, and are connected to a step-up transformer that is located immediately adjacent to the tower. This step-up transformer will transform the generated voltage to a higher voltage for collection.

### Electrical Collection System

Each collector or gathering line for the Wind IX sites will be constructed such that it consists of less than 25 MW of wind turbine output. Each of the collector lines will be connected to the Project substations which in turn connect to the transmission system.

### Access Roads

Roads will be constructed to provide access to each of the wind turbines. The roads will be of rock or gravel.

### Other Features

Other key components of the Wind IX facilities will include breakers, relaying, metering, switchgear and other electrical apparatus and other control system equipment installed at each tower. All facilities at each Wind IX site will be integrated into a complete functional system in compliance with good engineering practice, applicable codes and standards, and applicable environmental regulations and permits.

#### 1.3.3 Schedule

As mentioned previously, Wind IX will come on-line in segments as turbines and other facilities are installed.

#### 1.3.4 Operation

Wind IX may utilize existing staff from other MidAmerican wind power projects, new employees, and third-party providers to operate the Wind IX Iowa sites.

### 1.3.5 Facilities Performance

It is expected that the annual projected hours of operation of the Wind IX sites will be approximately 7,875 hours with an annual average capacity factor of approximately 36.8%. A reasonable range for the actual capacity factor is from about 36% to 40% depending on final turbine layout.

### 1.3.6 Site Arrangement

There is no standard arrangement for a wind farm site. However, as described above, each wind turbine will have a step-up transformer and an access road. The locations of the Wind IX turbines are dependent on the following factors, among others: the terrain, the wind resource, the location of homes, buildings and other structures, the location of roads, the location of trees and other items that may interfere with the wind resource. Also, as discussed above, each collector or gathering line that gathers the generation from turbines will collect less than 25 MW of generation output. The general approach used in developing each site arrangement is to maximize the wind energy potential of the entire site given the land rights that have been acquired and given the physical characteristics of the site, while minimizing gathering line, collector substation, off-site transmission, substation and other costs.

1.4 Raw Materials, Wastes and Transportation Facilities 41.3(1)d

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Raw Materials, Wastes and Transportation Facilities of the Wind IX Iowa Project (“Wind IX”).

There will be no principal raw materials used at the Wind IX sites. Wind IX is likely to use a variety of materials including lubricating and insulating oils and greases in various closed systems such as power transformers and rotating machinery, degreasing agents and solvents for cleaning and maintenance of equipment, and office and janitorial supplies incidental to operations. All such materials will be used in accordance with all applicable governmental regulations and laws. Spent lubricants, degreasers and solvents will be collected and recycled in accordance with applicable regulations and laws.

It is anticipated that existing transportation facilities will be adequate to serve the construction and operation of the Wind IX sites. The transportation facilities available to serve the proposed Wind IX sites are likely to include existing harbor, railroad, interstate, state, and local highways, and local street and road systems. The construction phase of the Wind IX sites will rely on all of the above-mentioned transportation facilities. It may be necessary to construct temporary turning facilities at corners of roads, and other temporary works, in order to allow the transportation of the longer and heavier components to the turbine sites. Permanent access roads will be constructed, if not already in-place, as a part of the Wind IX sites to provide access to the wind turbines. The existing

interstate, state, and local highways and local street and road systems will be used for operations, maintenance and waste disposal transportation.

1.5 Financial/Contractual Commitments

41.3(1)e

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Financial/Contractual Commitments regarding the Wind IX Iowa Project (“Wind IX”).

MidAmerican will be entering into a site acquisition contract, a turbine supply agreement and contracts for the construction of the Wind IX Project.

Contracts required to operate Wind IX will be similar in nature to those utilized for prior Wind Power Projects and will include operations and maintenance, spare parts, and road maintenance agreements.

Procurement of services and supplies needed for the operation and maintenance of the Wind IX Project will be done in accordance with MidAmerican’s policies and procedures and in conjunction with MidAmerican’s other generating units to obtain cost savings from larger quantity purchases.

At this time MidAmerican intends to finance the construction of the Wind IX sites utilizing approximately 50% long-term debt and 50% equity. Required regulatory approvals for the issuance of any debt securities by MidAmerican will be obtained as needed. The term, coupon and other features of these securities will be determined at the time of issuance.

1.6 Transmission Information

41.3(1)f

The transmission information required by Board proposed subrule 41.3(1)f is also addressed in the testimony of MidAmerican witness Peter Schuster. Briefly, Mr. Schuster's testimony describes the very involved studies and review processes that will be required by the Midcontinent Independent System Operator, Inc. ("MISO"), with respect to Wind IX. Through these studies and review processes, MISO has/will determine the impacts of the Wind IX sites on the transmission system, and will require the upgrading of transmission facilities if necessary to achieve compliance with accepted national and regional reliability standards. This will, in turn, ensure continued transmission system adequacy, reliability, and operating flexibility.

MISO transmission studies for the Wind IX Highland site are provided in Peter Schuster's Exhibit \_\_ (PJS-1), Schedules 1 and 2; MISO transmission studies for the other site have not yet been completed, as was the case for MidAmerican's Wind VIII ratemaking principles filing, as well as other ratemaking principles filings. MidAmerican witnesses Wright and Schuster have in their direct testimony assured the Board that MidAmerican will in a timely manner obtain all appropriate transmission interconnection, transmission service and other transmission related authorizations currently and prospectively required, prior to interconnecting and operating Wind IX on the transmission system. This is the same assurance that MidAmerican provided to the Board and undertook with respect to other MidAmerican ratemaking principles filings for previous wind projects.

1.7 General Contractor

41.3(1)g

Please see the testimony of MidAmerican witness Adam Wright pertaining to this subject.

1.8 Plant Operator

41.3(1)h

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

Please also refer to the testimony of MidAmerican witness Adam Wright as it pertains to the Plant Operator for Wind IX.