



MidAmerican Energy Company  
666 Grand Avenue, Suite 500  
P.O. Box 657  
Des Moines, IA 50306-0657  
(515) 281-2559 Telephone  
E-mail: [bjrybarik@midamerican.com](mailto:bjrybarik@midamerican.com)

Brian Rybarik, Attorney

March 28, 2016

Executive Secretary  
Iowa Utilities Board  
1375 East Court Avenue, Room 69  
Des Moines, IA 50319-0069

**FILED WITH  
Executive Secretary**

**March 28, 2016**

**IOWA UTILITIES BOARD**

**NOI-2014-0001**

**Re: MidAmerican Energy Company, Preliminary Implementation Plan, In Re: Distributed Generation, Docket No. NOI-2014-0001**

To Whom It May Concern:

Pursuant to the *Order Regarding Policy Statement, Rate Design Presentations, and Net Metering Generation Pilots* (“Order on Pilot Projects”)<sup>1</sup> and the *Order Granting Requests for Extension of Time*<sup>2</sup> issued by the Iowa Utilities Board (“Board”) in this docket, MidAmerican Energy Company (“MidAmerican”) provides this Preliminary Implementation Plan. MidAmerican considers this plan to be an innovative concept designed to encourage dialogue among interested parties. As is further outlined below, MidAmerican proposes a collaborative process to further refine the concepts. Depending on the outcome of this discussion, MidAmerican may file for ratemaking principles later this year that reflect the outcome of this collaborative process.

In the Order on Pilot Projects, the Board indicated a desire to see Iowa’s energy providers develop pilot projects that will provide experience and information to interested parties, the Board, and energy companies. This information will be used to identify additional policies that will guide the future of private generation (also referred to as distributed generation) development in Iowa. MidAmerican’s preliminary concept seeks to fulfill these goals by providing the framework to develop a community solar garden project, introduce energy storage in Iowa and to evaluate pricing structures associated with future private generation.

MidAmerican’s preliminary concept is an element of MidAmerican’s vision for the future of the energy business. MidAmerican’s vision is to continue to serve more of our customers’ annual energy needs with renewable resource generation. This enterprising vision is designed to meet the needs of our customers and to fulfill our environmental responsibilities both now and in the future. MidAmerican recognizes that the direction of our industry is changing and will continue to move away from fossil fuels.

---

<sup>1</sup> *In Re: Distributed Generation*, Docket No. NOI-2014-0001 (October 30, 2015).

<sup>2</sup> *In Re: Distributed Generation*, Docket No. NOI-2014-0001 (February 16, 2016).

MidAmerican's vision is guided by a number of factors, including the need to develop energy sources that result in a reduction of greenhouse gas emissions. This need is evidenced by the recent agreement of over 190 participating countries that committed to reducing greenhouse gas emissions worldwide that was the result of the 2015 United Nations Climate Change Conference (COP21). MidAmerican's parent company, Berkshire Hathaway Energy Company, was one of a select few companies that signed a pledge leading up to COP21 to significantly reduce greenhouse gas emissions.

Despite the recent stay of the Clean Power Plan by the U.S. Supreme Court, the United States Environmental Protection Agency (EPA) continues to develop regulations that will reduce greenhouse gases. Further, the Board and the Iowa Department of Natural Resources have identified a preference to continue their collaborative process. It is important to note that the EPA's proposed regulations (including the Clean Power Plan) are the result of an earlier decision by the U.S. Supreme Court, which found that greenhouse gases meet the definition of air pollutants that can be regulated if they are "reasonably anticipated to endanger public health or welfare."<sup>3</sup> The EPA made such a finding in 2009 about greenhouse gases, which was upheld by the D.C. Circuit Court of Appeals.<sup>4</sup> This shows that greenhouse gas regulation will be pursued in some form, notwithstanding the current status of the Clean Power Plan.

Iowa is also participating in the Governors' Accord for a New Energy Future. This Accord is designed to encourage renewable energy development, diversify energy resources, reduce dependence on foreign energy sources, and support the growth of American business in a manner that is beneficial to customers. The direction is clear – a future with much less fossil fuel generation and more renewable resource generation begins now.

The preliminary concept outlined here fits squarely with this direction. While MidAmerican is planning to develop additional renewable generation to move our vision forward, this preliminary concept presents an opportunity to gain additional experience with solar and storage technologies to ensure that our long-term vision is implemented. The pilot projects will allow MidAmerican to gain information and experience with these technologies and to better understand customer demand and preferences for emerging resources. The solar energy and energy storage pilot project components are outlined in Section I below.

MidAmerican's concept also recognizes that the industry must engage in a conversation about pricing structures involving private generation. It is our fundamental belief that this issue is about equitable treatment of all customers in an energy company's service territory. Currently those customers that can afford private generation are the only ones who install such systems and as a result, reduce how much they pay to support the very power grid they need to allow operation of their systems. As such, today's pricing structures shift the costs of operating and maintaining the power grid to those who cannot afford private generation or choose not to install

---

<sup>3</sup> *Massachusetts v. EPA*, 549 U.S. 497, 528 (2007).

<sup>4</sup> *Coalition for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 117 (D.C. Cir. 2012).

it, resulting in these customers paying more and subsidizing those that can afford private generation systems. As part of the vision, recognizing that there may be many ways to address this fundamental concern, MidAmerican presents one possible option for solving this issue in this preliminary concept which is further discussed in Section II below. Further, MidAmerican is proposing a process to discuss this issue as part of a broader collaborative process below in Section III.

Finally, the Order on Pilot Projects sets forth a number of additional items, including identification of how the projects will be assessed. While these items are in development and will be part of our discussion with interested parties, MidAmerican provides preliminary information on these issues in Section IV below.

MidAmerican is committed to collaborating with all interested parties on the elements of this preliminary concept. Depending on the results of the discussions, MidAmerican may file for advance ratemaking principles to further advance its preliminary concept.

### **Section I: Solar energy and energy storage development in Iowa.**

MidAmerican has significant experience with the development of wind energy. We are a national leader in this area with over 4,000 MW of wind in operation or currently under construction. While wind has been the clear choice for cost-effective renewable energy in Iowa, solar energy is becoming a desired option for a small portion of our customers. As part of this preliminary concept, MidAmerican is recommending to build a community solar garden in Iowa. MidAmerican's community solar garden is proposed to be, at minimum, a 5 MW solar development that will interconnect to MidAmerican's distribution system. MidAmerican will employ the Board's interconnection processes and procedures to ensure safe and reliable interconnection of the facilities. The community solar garden project will be owned and operated by MidAmerican. The development and construction of the project will be cost-effective and implemented and designed to gather information on the operating characteristics of solar as well as customer interests in solar energy.

The location of MidAmerican's community solar garden is still being researched. However, the goal will be to use land that does not have significant alternatives for other use. For example, land around MidAmerican's existing substations will be considered. Other options may be to deploy land used in the past for ash disposal or brownfield properties that currently have no other intended use. As more details are developed, the collaborative process outlined in Section III will provide the opportunity for information sharing on the site location and design of the community solar garden project.

As a community solar garden project, MidAmerican proposes to provide customers access to the solar project on a subscription basis, with portions of the solar output designated for customers from the residential, commercial and industrial rate classes. Under this proposal, customers will be offered the opportunity to subscribe to a share of the electricity generated by

the facility. Participation will be in specified increments, up to a maximum that is based on the customer's historical usage.

MidAmerican's initial proposal is that subscribers will take service under the same pricing structure as all other private generation customers. A subscription price that will be developed will be used to pay for the applicable community solar garden. This subscription price will be based on the capital, operation and maintenance costs and administrative costs associated with the project. The final pricing structure will be dependent on a number of things, including the collaboration process and terms that are subject to approval by the Board.

The duration of a subscription will also be developed through the collaborative discussions. MidAmerican does propose, however, to allow customers to maintain their subscription if they move within the MidAmerican service territory.

Additional solar capacity (up to 35 MW total) will be developed under this proposal if there is sufficient customer demand. After subscription to the first 5 MW is complete, a waiting list for an additional 5 MW of development will be maintained. When there is sufficient demand for an additional 5 MW, MidAmerican will proceed to build the next 5 MW increment. This process of maintaining a waiting list and building 5 MW increments will continue until MidAmerican has built a total of 35 MWs of community solar.

The community solar garden project development is expected to provide experience and information that will also help MidAmerican, the Board and customers to better understand solar technology and its costs as well as the benefits it may bring to MidAmerican's system and to our customers. The proposal is summarized in the table below:

<b>Size</b>	<ul style="list-style-type: none"> <li>• 5 MW minimum</li> <li>• Up to 35 MW with sufficient customer demand</li> <li>• After 5 MW is fully subscribed, customers will be placed on a waiting list until there is demand to drive new construction of the next 5 MW increment</li> </ul>
<b>Eligible customers</b>	<ul style="list-style-type: none"> <li>• Residential, commercial, and industrial customers</li> <li>• Potential to segment solar to ensure all classes have access to the community solar garden development</li> </ul>
<b>Subscription process</b>	<ul style="list-style-type: none"> <li>• Customers sign up for desired duration</li> <li>• Propose to have a minimum commitment term, with longer-term options as well</li> </ul>
<b>Cost/pricing structure</b>	<ul style="list-style-type: none"> <li>• Subscription price developed to cover cost of solar facility, including development, operations and maintenance costs and administrative costs; new pricing structure to be discussed in the collaborative process</li> </ul>

This preliminary concept also introduces an opportunity to explore energy storage projects in Iowa. Currently, energy is produced and consumed at virtually the same time. The introduction of energy storage may have a significant impact on the system by allowing for the storage of energy that is produced when it is less expensive, and discharged when energy is more expensive. For MidAmerican and its customers, this could be beneficial because an increasing portion of our energy comes from variable resources, which can be made more valuable with the introduction of storage technologies.

Under this pilot project, MidAmerican proposes to install a battery with 1 MW of peak capacity and the ability to discharge over 4 hours, making it a 4 MWh energy storage device. The battery will be tied to the first 5 MW community solar garden. The cost of building, operating and maintaining the storage element of the community solar garden will initially be paid for by MidAmerican and will not be included in the subscription price.

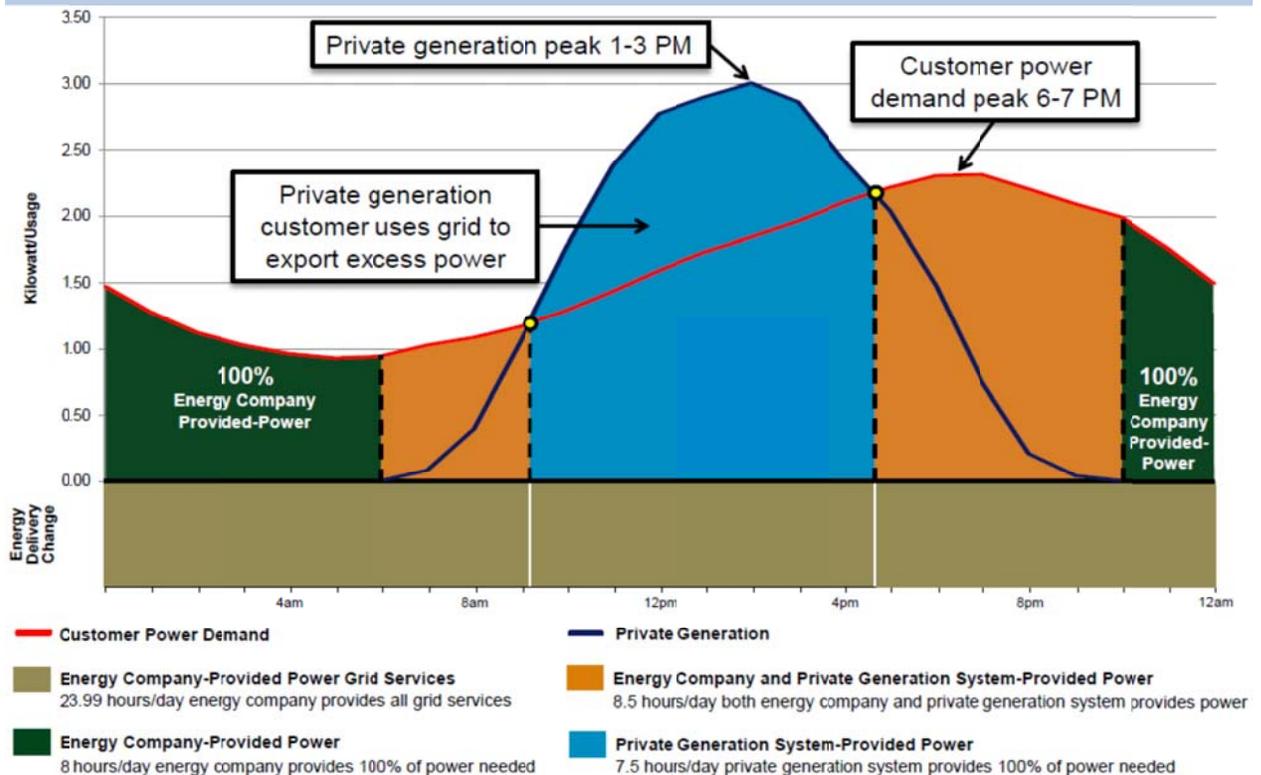
MidAmerican will employ the Board's interconnection processes and procedures to ensure safe and reliable interconnection of the facilities to MidAmerican's distribution system, which will provide experience with applying these rules to energy storage. Placing battery storage on the system will also help identify the value storage may bring to the system and to identify areas where policies may need to be changed (including those at the Midcontinent Independent System Operator, Inc. ("MISO")) to better capture the value of this technology. As an example, experience with storage may encourage MidAmerican to pursue changes to MISO's ancillary services market. This pilot might also help identify ways to use energy storage that allow for investment deferrals based on the placement and operation of the storage device.

Implementation of community solar and energy storage will provide the information and experience that the Board has identified as helpful and necessary in the Order on Pilot Projects. MidAmerican looks forward to additional conversation to refine this proposal, with the goal of presenting associated advance ratemaking principles to the Board later this year.

## **Section II: Revised Pricing Structure for Community Solar and Private Generation**

The pricing discussion as part of this preliminary concept is important because today's private generation systems cannot function without the power grid, nor can they fully meet the customer's electricity needs. For example, in the case of private rooftop solar the following graph illustrates the customer demand for electricity in Iowa over the course of a typical summer day (red line) and the power being generated by a private rooftop solar system (dark blue line). The orange shaded area shows the number of hours during the day the energy company and the private solar system provide power. The blue shaded area shows the hours during the day when the private solar system provides for the residential customer's power needs, and during some hours produces excess power that is taken and distributed by the energy company. The tan shaded area along the bottom of each graph shows that the energy company provides all power grid services 23.99 hours a day.

## Iowa Typical Residential Summer Demand with 5 kW<sub>DC</sub> Private Solar System



This graph illustrates that power is delivered through the energy company's system to private generation customers on cloudy days, at night, when the customer's system is not functioning properly, and even on hot, sunny days when solar panels may not meet all of the residential customer's power needs. In other words, customers are as dependent on power grid services with private rooftop generation as they are without.

However, private generation customers pay only for the power they do not make themselves (net power). When a private generation customer reduces their net usage from an energy company (sometimes completely), the amount they pay for the power grid services they use is significantly reduced. This is due to the fact that today's pricing structures recover most of the fixed costs of the power grid in the volumetric charge for each unit of electricity their customers use. This is true even though the power grid services are still needed all of the time – either to deliver power to the private generation customer or to deliver excess power from the private generation system to the energy company as well as provide other critical services that are essential to operation of the power grid, including voltage and frequency control. As a consequence, non-private generation customers must pay for more of the power grid services costs that are being used – but not paid for – by private generation customers. As the amount of

private generation connected to the system grows, this discrepancy will cause more costs to be shifted to non-private generation customers through higher rates.

One option for addressing this issue is a three-part price structure. MidAmerican desires to collaborate on this concept and how it could be implemented for customers who are future subscribers to MidAmerican's community solar garden pilot or who develop private solar generation at their premises. It is important to note that MidAmerican intends that any new pricing structure only be applied prospectively. In other words, customers who are currently taking service under MidAmerican's current two-part pricing structure would not be impacted by a new pricing structure.

The need for some type of new pricing structure is about fairness for all MidAmerican customers while ensuring that Board approved cost-of-service principles are followed. The parts of MidAmerican's three-part price structure to be used for discussion include:

- (1) a basic service charge paid by customers utilizing MidAmerican services – this will recover costs for accounting, billing, customer service systems and the distribution system that is closest to the customer;
- (2) a volumetric energy usage charge to pay for generation services; and
- (3) a demand-based charge that recovers the cost of certain distribution and transmission facilities.

This type of pricing proposal presents a structure which will better align costs and price. In turn, this will reduce inter-class subsidies as additional private generation is added. The goal is to develop and implement a new pricing structure that achieves these outcomes. If there are ways to accomplish these goals, other than a three-part structure, participants are encouraged to bring ideas to the collaborative process outlined below.

Regardless of what type of pricing proposal is implemented to address the fairness issue, MidAmerican strongly believes that now is the time to address this issue when the number of private generation customers in MidAmerican's territory is low. Establishing a fair pricing structure prior to a significant build out of private generation will create certainty for customers, regulators and the company going forward.

### **Section III: Outreach, Education, and Collaboration Process**

To obtain input on the concepts set forth above, MidAmerican proposes a series of collaborative meetings to provide information and to gain input from the parties in this Notice of Investigation docket. MidAmerican's preliminary outreach calendar is set forth below, which has been developed to start a process of education and collaboration leading up to a possible ratemaking principles filing relating to the solar, storage and pricing elements of the plan. The proposed timeline is as follows:

<b>Subject of Meeting</b>	<b>Date</b>	<b>Location</b>	<b>Participants</b>
Education: Overview of Electricity Production and Transmission: Electricity 101 and MidAmerican Proposal Overview	Week of April 25	MidAmerican State Fair Education Center	MidAmerican, Notice of Investigation (NOI) participants, other interested parties
Education: Overview of MidAmerican's Pilot Proposal	Week of May 9	IUB Offices – Des Moines	MidAmerican, NOI participants, other interested parties
Education: Overview of MidAmerican's Pilot Proposal	Week of May 16	TBD – Outside of Des Moines Area	MidAmerican, NOI participants, other interested parties
Feedback/Discussion Meeting – Proposals to Modify Concepts	Week of June 13	Des Moines	MidAmerican, NOI participants
Feedback/Discussion Meeting – Proposals to Modify Concepts	Week of July 11	TBD – Likely Outside of Des Moines Area	MidAmerican, NOI participants
Review of Feedback/Identification of Proposal Modifications	Performed by MidAmerican after feedback meetings		MidAmerican
Possible Advance Ratemaking Filing	Late 3 <sup>rd</sup> or early 4 <sup>th</sup> quarter		
Advance Ratemaking Process	As identified by the Board		

#### **Section IV: Specific Questions Identified in Order on Pilot Projects**

- (1) a timeline for the implementation of a pilot project;

As noted in the information above, MidAmerican plans to seek advance ratemaking principles for solar and energy storage development. The proposal would be developed and modified through a collaboration process outlined in Section III above. If advance ratemaking principles are approved, construction will likely begin in the spring of 2017. With respect to the

three-part pricing structure (or other approach that addresses our concerns), the goal is to implement the new pricing structure on January 1, 2017.

(2) a plan for additional collaboration with participants in the Notice of Investigation docket;

The proposed collaboration schedule is set forth in Section III, above.

(3) the goals of a proposed pilot project;

The project goal is to gain information and experience with solar and storage technologies and to better understand customer demand and preferences for emerging resources and to develop pricing structures that ensure fairness among all customers. This is an opportunity for innovation and exploration of best practices that can help achieve the goals of this docket, consistent with state policy.

Having community solar on the system will provide a better understanding of how solar will work in Iowa, and information on the construction and maintenance of this resource. The energy storage element of the proposal has similar goals, but is informative about a relatively nascent technology. Pricing changes will be designed to ensure that private generation customers pay for their share of power grid services, and will also provide information about customer behavior and how it changes when cost-of-service based pricing structures are applied. In total this presents an opportunity to test logistics, identify the potential benefits of projects, identify additional policies that may need to change at the state and MISO levels, and reveal any insufficiencies that need to be resolved before additional projects move forward.

As noted in earlier MidAmerican comments in this docket, our ultimate goals are to understand:

- 1) the demand for solar in Iowa;
- 2) the impact of pricing structures that provide fair and economical services to all of our customers, including those who choose not to install solar;
- 3) the impact of solar and storage on providing load relief which may lead to distribution investment deferrals;
- 4) the associated costs and benefits of using solar and storage resources as part of MidAmerican's system portfolio;
- 5) implementation, reliability, and operational issues of solar and storage;
- 6) actual and expected output of solar and storage on a real-time basis;
- 7) the extent to which new forecast techniques will be needed;

- 8) interconnection issues and real-time operational effects of solar and storage on the distribution system; and
- 9) how batteries or other storage systems might best be used to complement the integration of intermittent resources.
- (4) how the results of the projects will be identified and considered; and

MidAmerican will work with stakeholders to identify how to capture the results of the proposals.

- (5) a plan for reporting results to the Board.

MidAmerican proposes to provide quarterly reports to the Board during the first year of the pilot project (2017) and will then move to annual reports. After a five-year period, the annual reporting requirement will cease.

MidAmerican looks forward to working with the Board members and staff as well as the other participants in this docket to further develop this plan. Questions about this submission can be directed to me at 515-281-2559 or by email at [bjrybarik@midamerican.com](mailto:bjrybarik@midamerican.com).

Sincerely,

*/s/ Brian J. Rybarik*

Brian J. Rybarik

Managing Senior Attorney