July 9, 2014
Docket No. INU-2014-0001
MidAmerican Energy Company

FILED WITH
Executive Secretary
July 09, 2014
IOWA UTILITIES BOARD

ENVIRONMENTAL LAW AND POLICY CENTER
MIDAMERICAN AVOIDED COST WORKSHOP
FOLLOW UP QUESTIONS

1. Please explain how MidAmerican Energy Company's (MEC) avoided cost methodology accounts for the factors that PURPA requires a utility take into account to determine avoided costs as enumerated in 18 CFR § 292.304(e). For reference 18 CFR § 292.304(e) and 18 CFR § 292.302(b), (c), and (d) are included below. Please quantify how each factor affects the rates for purchase to the extent possible.

   Response: The avoided energy rates published by MidAmerican Energy Company (MEC) are calculated based on the operation of the current and forecasted MEC generating resources and contract purchases to serve MEC projected retail energy requirements for the current calendar year and each of the next 5 years. The cost effect on the avoided rate of each individual item is not separately segregated.

   i. The ability of the utility to dispatch the qualifying facility – The operating characteristics of the MEC generating units and the ability to dispatch to meet retail energy requirements are included in the hourly avoided energy cost calculation.
   ii. The expected or demonstrated reliability of the qualifying facility – The reliability of the MEC generating units as measured by forced outage rates and response to hourly retail energy variations is included in the hourly avoided energy cost calculation. Specific QF transactions are handled on an individual basis through contract negotiations with candidate QF customers.
   iii. The terms of any contract or other legally enforceable obligation, including the duration of the obligation, termination notice requirement and sanctions for non-compliance – All existing and expected energy purchase contracts along with the expected operating characteristics of the facility are included in the hourly avoided energy cost calculation. Specific QF transactions are handled on an individual basis through contract negotiations with candidate QF customers
   iv. The extent to which scheduled outages of the qualifying facility can be usefully coordinated with scheduled outages of the utility's facilities – The coordinated scheduled calendar of the MEC generating units outages are included in the hourly avoided energy cost calculation.
   v. The usefulness of energy and capacity supplied from a qualifying facility during system emergencies, including its ability to separate its load from its generation. Energy - The hourly energy profile of current and expected MEC generating units to meet the hourly variation of expected retail energy requirements are included in the hourly avoided energy cost calculation. Capacity - Capacity eligible for registration to meet MEC's resource adequacy requirements in MISO have an obligation to

perform under system emergencies. MEC's avoided capacity calculation in its PURPA filings presumes MISO capacity credit eligibility, and values capacity consistent with the MISO capacity market. Contract-specific negotiations will consider MISO capacity credit eligibility under more detailed reviews.

vi. The individual and aggregate value of energy and capacity from qualifying facilities on the electric utility's system. Energy - The hourly generating unit response (generating capability) to meet the hourly retail loads accumulated as the MEC system are included in the hourly avoided energy cost calculation. Capacity – MEC utilizes short-term MISO capacity market pricing signals followed by longer-term pricing signals based upon the determination of an economic carrying charge for a combustion turbine using the methodology described on June 5, 2014 in Docket No. INU-2014-0001. Contract-specific negotiations will consider MISO capacity credit eligibility under more detailed reviews.

vii. The smaller capacity increments and the shorter lead times available with additions of capacity from qualifying facilities. Energy –MEC calculates avoided energy costs for increments of 0, 50, 100, 150 and 200 MW and interpolates avoided energy costs for 10, 20, 30 and 40 MW levels. Capacity – MEC utilizes short-term MISO capacity market pricing signals followed by longer-term pricing signals based upon the determination of an economic carrying charge for a combustion turbine using the methodology described on June 5, 2014 in docket INU-2014-0001. Contract-specific negotiations will consider MISO capacity credit eligibility under more detailed reviews.

2. Please provide an Excel file showing the 8760 hourly values that were used to provide the average annual avoided energy cost projections.

   Response - See Attached Confidential Exhibit 1

3. MidAmerican stated that a constant value decrement was used for all hours of the year to represent a purchase from a qualifying facility. This assumption would appear to not represent the typical generation profile of a wind turbine or solar photovoltaic (PV) system. Please calculate the avoided costs using both a typical wind generation profile and a typical solar PV generation profile for your service territory.

   Response - The avoided costs filed for PURPA filing are intended to be indicative purchase prices. PURPA customers include generators with flat output, such as methane digesters, as well as wind and solar generators. Customer-specific factors are included when negotiating purchases, such as expected hourly generation output, customer location and generator interconnection.

4. MidAmerican's calculations show that wind power causes the avoided cost to be zero for some hours which tends to lower the annual average avoided cost. As MidAmerican adds more wind power, will the avoided costs likely decrease?

   Response – The amount of wind power is just one factor that impacts avoided energy costs. All else being equal, more wind power will put downward pressure on avoided energy cost levels. MEC calculates avoided energy costs based on the operation of the current and forecasted MEC generating resources and contract purchases to serve MEC projected retail energy requirements for the for the current calendar year and each of the next 5 years. Avoided energy costs will fluctuate based on the costs of the generating resources needed to serve the retail energy requirements. Changes in any of the variables - cost, generating resources or load requirements - will change the avoided energy costs. While there could be a decrease in avoided costs as a result of adding wind power, the effect is dependent on the total resource profile at the time of the calculation process.

5. MidAmerican's calculations at times assume the MISO market is available for either purchases or sales of energy while at most times it assumes the MISO market is not available. Why would MidAmerican not be consistent and assume the market was always available or not ever available? Please provide sample avoided costs using the 2012 filing under the assumption that the market is always available and separately under the assumption that the market is not ever available.

   Response - MEC's avoided cost calculation is consistent in assuming the MISO market is not ever available for purchases or sales of energy. The avoided cost methodology dispatches MidAmerican resources against MidAmerican load requirements in an "isolated system". MidAmerican resources are sufficient to meet MidAmerican load requirements, thus no market purchases are included. When the sum of MidAmerican resources operating at minimum levels is greater than MidAmerican load, no market sales are modeled. Typically, in an isolated system methodology, energy above load requirements would "dumped" at an additional cost, causing the avoided cost in that hour to be negative. MidAmerican did not include a dump energy cost in the 2012 avoided cost filing; therefore these hours have an avoided cost of zero.

6. Was MidAmerican's Wind VIII project ever modeled as a capacity addition in any previous PURPA avoided cost biennial filings?

Response – No, the Wind VIII project is not included in the August 3, 2012 filing (Docket No. TF-2012-0574).

7. Even though Iowa does not require an Integrated Resource Plan (IRP) filing, please describe your approach to medium- and long-term system capacity and resource planning.

   Response - A review of MEC's Wind VIII filing, particularly the testimony of O. Dale Stevens, II, will provide guidance as to MEC's approach to medium- and long-term system capacity and resource planning.

8. How are distributed generation and demand-side management (EE and DR) incorporated into your IRP?

   Response - MEC does not have an IRP filing. MidAmerican's load forecasts account for existing energy efficiency, demand response, and behind the meter generation.

9. How are T&D system capacity issues and opportunities incorporated into your IRP?

   Response - MidAmerican does not have an IRP filing. MidAmerican's generation assessments take into account many aspects. Final siting decisions for resources may include consideration of locational issues such as transmission, among other factors.

10. How do the results of your IRP process impact your avoided cost calculations?

    Response - MidAmerican does not have an IRP filing. MidAmerican's avoided cost calculations are determined as described at the June 5, 2014 workshop in Docket No. INU-2014-0001.

11. Since transmission constraints have an impact on MidAmerican's dispatch of generation resources, why were these transmission constraints not considered in the avoided cost calculations?

    Response - The avoided cost methodology dispatches MEC resources against MEC load requirements in an "isolated system" manner. MEC's wind resources are modeled at historical output, which incorporates transmission curtailments. MEC's non-wind generating units have been determined by MISO to be network resources, meaning that they are presumed to have sufficient transmission capability to deliver

energy to MidAmerican's network load. Thus, transmission constraints are not explicitly modeled in the "isolated system" method.

12. Related to line losses, does MidAmerican's model account for specific project locations? Does MidAmerican's model account for proximity to load growth of a QF?

    Response – MEC calculates avoided energy costs based on the operation of the entire MEC system using current and forecasted MEC generating resources and contract purchases to serve MEC projected retail energy requirements. Line lossare accounted for in load forecasts where historical data is used.. MEC's PURPA rate filings are for general application and are not evaluated on specific or hypothetical locations. Specific QF situations are handled on an individual basis through contract negotiations with candidate QF customers.

13. FERC allows environmental costs to be included in avoided costs as long as they are real costs that would be incurred by utilities. How do MidAmerican's avoided cost models incorporate environmental costs into the methodology? Please provide examples for how incremental environmental costs were incorporated into avoided cost filings in 2006, 2008, 2010, and 2012. Please quantify the role of the environmental costs for each of these years.

    Response – See Attached Confidential Exhibit 2.

14. Are planning numbers for costs associated with regulation of greenhouse gas emissions included?

    Response – Yes, MEC avoided energy costs include costs of controlling emissions and projected allowance emission costs for SO2, NOx and CO2. CO2 emission allowance costs are projected to begin in 2021 based on the 2012 PURPA filing.

15. How are risks associated with rising fuel costs and fuel price volatility reflected in the model?

    Response - A significant portion of MEC's forecasted coal requirements are purchased on a forward basis. Open coal positions are forecasted at market prices. Forecasted natural gas prices are based on observable market prices, transitioning to a vendor forecast. In the PURPA filing, it is assumed that fuel costs can be procured at market prices through physical or financial hedging.

16. Is any benefit for hedging of fuel costs accounted for in QF avoided costs? If so, how? If not, why not?

    Response - MEC hedges fuel to achieve forecasted costs. Hedging eliminates the benefit of lower costs along with the risk of higher costs. Therefore, there is no benefit to be included from hedging fuel cost.

17. Do QFs currently allow MidAmerican to increase sales into the wholesale market? Would increasing QF energy and capacity in its service territory allow MidAmerican to increase sales into the wholesale market? What benefits would MidAmerican see from this, such as revenue from wholesale sales or other benefits?

    Response – No. MEC's avoided cost calculation does not assume wholesale sales of energy. The avoided cost methodology dispatches MEC resources against load requirements in an "isolated system" manner.

18. MidAmerican has proposed a retail rate increase while its PURPA avoided costs appear to be static or even decreasing. What costs does MidAmerican incur that require an increase in retail rates that are not avoided by QFs or energy efficiency?

    Response – The electric rate increase MidAmerican has requested is the subject of a separate Iowa Utilities Board Docket and will not be discussed in detail in this response. For more information on reasons for the rate increase request you can reference the testimony of William J. Fehrman in Iowa Utilities Board Docket No. 2013-0004. In general, in a rate case all revenues and expenses of a utility are reviewed for a particular period of time (e.g., test year). Expenses such as labor, benefits and other fixed costs to operate existing electric generation and delivery systems would be examples of expenses not included in avoided cost calculations. In addition, the revenue requirement used to justify an increase includes costs related to investments in the existing generation and delivery system. These costs would not be included in avoided cost calculations. It should be noted that this was the first base electric rate increase requested by MidAmerican since 1995.