

**MidAmerican Energy Company****Second Annual Report of Carbon Reduction Cost Recovery Rider**

**FILED WITH  
Executive Secretary  
November 16, 2012  
IOWA UTILITIES BOARD  
TF-2012-636**

**Background**

On July 9, 2010, MidAmerican Energy Company (MidAmerican) filed with the Iowa Utilities Board (Board) a proposed tariff, identified as TF-2010-0085, to recover costs for analyses of and preparations for the possible construction of nuclear generating facilities in Iowa that could be beneficial in a carbon-constrained environment.

Recovery of such costs is authorized by House File 2399, which was passed by the General Assembly in 2010 and added a new section to the Iowa Code (i.e., § 476.6(22)). MidAmerican requested that the proposed tariff be effective October 1, 2010. No objections to the proposed tariff were filed. The Board issued an order dated August 6, 2010 approving the tariff. On August 25, 2010, MidAmerican filed tariff Sheet No. B-5.10 in Docket No. TF-2010-0116 to establish Rider CR rates to be applied to all kilowatt-hour sales in Iowa beginning October 1, 2010. MidAmerican filed a revised tariff sheet lowering the Rider CF factors under TF-2011-0134 to become effective January 3, 2012; which were approved on December 29, 2011.

Pursuant to § 476.6(22), MidAmerican is to file an annual report with the Board identifying and explaining expenditures intended for cost recovery through this rider, along with any other information required by the Board. At the conclusion of the cost recovery period, which can extend no more than 36 months in total, the statute requires that the Board conduct a contested case proceeding to evaluate the reasonableness and prudence of the cost recovery.

MidAmerican submitted its first annual report and reconciliation calculations for Rider CR – Carbon Reduction Recovery Rider with the Board on November 23, 2011. On December 12, 2011, the Board issued a request for additional information asking MidAmerican to provide a non-binding estimate of 2012 spending projections. MidAmerican provided a response to the Board's request on December 22, 2011. The Board issued an order accepting the filing and closing the docket on January 13, 2012.

This report is submitted to fulfill MidAmerican's second annual report filing requirement and includes expenditures from October 1, 2011, through September 30, 2012. Through September

30, 2012, a total of \$10,576,123.84 has been billed to MidAmerican customers through the Carbon Reduction Recovery Rider. Rider CR recoverable costs through September 30, 2012 total \$4,829,112.52. Details of Rider CR recoverable costs are identified on Table 1 at the end of this report. MidAmerican is proposing to retain recoveries in excess of expenditures for the period as expenditures during the period October 2012 through September 2013 may exceed Rider CR Revenue. Total projected expenditures of Rider CR recoverable costs are identified on Table 2 at the end of this report.

### **Identification of Expenditures and Cost Recovery**

The expenditures to “undertake analyses of and preparations for the possible construction of nuclear generating facilities” in Iowa during the second reporting period and cumulative through September 30, 2012, are summarized on Table 1. MidAmerican is proposing only to pass through the rider incremental costs<sup>1</sup> incurred for the feasibility analysis of a nuclear facility in the rider. MidAmerican also understands that under Iowa Code § 476.6(22), the Board will conduct a contested case proceeding at the conclusion of the cost recovery period (up to 36 months) to evaluate the reasonableness and prudence of the expenditures, including those summarized on Table 1.

The expenditures incurred from October 2011 through September 2012 to analyze the feasibility of the construction of nuclear facilities in Iowa have been centered in the following general areas:

1. Assessment of the natural gas market for analyzing baseload alternatives to a nuclear generating facility in Iowa; in particular a natural gas combined cycle generating facility
2. Assessment of physical characteristics of locations in Iowa for potentially hosting a nuclear generating facility
3. Acquiring property rights at two sites in Iowa deemed potentially suitable for a nuclear generating facility by a thorough site selection study

---

<sup>1</sup> For example, project costs for labor and labor loadings of existing MidAmerican employees as of the date of enactment of the legislation are not included in the expenditure schedule. However, incremental costs of additional expenses related to the nuclear feasibility analysis, including all of the labor and labor loading costs of incremental MidAmerican staff added after legislation passage, are included.

4. Public outreach to inform local landowners and officials about the ongoing site evaluations

A natural gas combined cycle generating facility is considered the most viable alternative to a nuclear facility for future baseload generation in Iowa. If such a natural gas facility were deployed, approximately 90%<sup>2</sup> of the power production costs would be attributable to the price of natural gas. Therefore, in order to properly analyze the potential costs of a natural gas generating facility in Iowa, MidAmerican retained a nationally recognized consultant, NERA Economic Consulting (“NERA”), to assess the future natural gas market. Using these natural gas price forecasts and the nuclear business plan developed by an engineering consultant, NERA developed a comparison of the potential revenue requirements of a nuclear facility and a natural gas combined cycle plant under several scenarios.

NERA was also requested to evaluate the relative economic development impacts on Iowa of deploying nuclear and natural gas generation alternatives. Because a nuclear generating facility is capital and labor intensive and natural gas is fuel cost intensive; a distinctive difference in Iowa employment, gross state product and disposable income may exist. At the end of the second annual filing, NERA was in the process of drafting a report of its findings on the three issues of:

- Future natural gas price forecasts
- Comparison of the revenue requirements of nuclear and natural gas fueled generating facilities, and
- The difference in Iowa economic development of the two baseload alternatives.

The assessment of physical characteristics for determining preferred Iowa sites that could potentially host a nuclear facility requires specialized skills. These skills were procured from consultants with nuclear facility siting experience and knowledge of the Nuclear Regulatory Commission assessment requirements. This consultant, Sargent & Lundy, identified locations in Fremont and Muscatine counties as potentially the most suitable preferred sites for a nuclear generating facility (i.e., the potential sites). MidAmerican spent several months in negotiating

---

<sup>2</sup> Source NEI, Fuel as a Percentage of Electric Power Production Costs 2011, Updated May 2012, [Nuclear Energy Institute - Fuel as a Percentage of Electric Power Industry Production Costs \(2011\)](#)

land rights to approximately 700 acres in both Fremont and Muscatine counties. The costs for these land rights were transferred to MidAmerican during the second annual reporting period.

Following MidAmerican's September 2012 meetings with adjacent landowners and county officials in Fremont and Muscatine counties, MidAmerican's site selection consultant, Sargent & Lundy, began on-site physical testing at these two potential sites. Cultural resource surveys, intake structure location assessments, wetlands inspections, environmental assessments and soil borings were scheduled at each potential site location at the end of the second annual period.

### **Explanation of Second Period Expenditures**

In Table 1, the MidAmerican Incremental Labor and Expenses Subtotal includes the incremental MidAmerican costs for labor, labor loadings and expenses. For labor and labor loadings, the costs are limited to new MidAmerican staff hired after the date of enactment of the legislation or support staff from MidAmerican Energy Holdings Company that performed work specifically on the nuclear feasibility assessment. These nuclear tasks are associated with managing a particular aspect of the nuclear effort or providing a specific expertise. Business expenses charged to this line item are those non-labor incremental expenses incurred by all MidAmerican staff (incremental and existing) associated with the nuclear feasibility assessment required under HF 2399. Total expenses for incremental labor, labor loadings and expenses totaled \$147,685.19 for the 12-months ending September 30, 2012. Separately noted on Table 1 are \$641,753.76 of labor and labor loadings and accounting adjustments incurred by MidAmerican for the 12-months ending September 30, 2012, to complete the nuclear feasibility assessment; but not passed through the CR rider because they were not assessed by MidAmerican as "incremental" costs.

Embedded in the labor (incremental and existing) and non-labor expenses are costs related to oversight of the comprehensive nuclear feasibility and site selection process, public outreach, and small modular reactor industry involvement. In order to inform the local communities of the intent and extent of site evaluations near the potential sites, MidAmerican held meetings during September 2012 in Fremont and Muscatine counties. MidAmerican provided presentations on how each site was identified as a potential site for future baseload nuclear or natural gas generation through the site selection process conducted by outside experts. In addition, MidAmerican explained what local residents could expect to see during the on-site

investigations. These meetings emphasized the preliminary nature of the on-site work, stressing that no decisions have been made regarding construction of any generating facility at the specific location.

Nuclear Site Characterization expenses on Table 1 involve the evaluation of land parcels in Iowa to identify potential sites for a nuclear facility. This assessment began in 2010 and provides a systematic, industry accepted process to characterize and select a site or sites. The initial phases of this assessment utilized the Electric Power Research Institute (“EPRI”) report, “*Siting Guide: Site Selection and Evaluation Criteria for an Early Site Permit*” as guidance. The EPRI siting guide references US Nuclear Regulatory Commission (“NRC”) siting requirements consistent with those references provided in US NRC Regulatory Guide 4.7. The evaluation criteria in this guidance document are in the following general areas:

- **Health and Safety:** including geology, seismology, hydrology and meteorology,
- **Environmental:** including local ecology,
- **Socioeconomic and Land Use,** and
- **Engineering and Cost:** including construction characteristics, transportation and transmission access and land rights.

Through September 2012 the major expenses in this category are for industry expertise in completing the initial phases of this assessment. The \$55,791.45 expensed during the 12-months ending September 30, 2012, was centered on the project management by MidAmerican’s site selection consultant in preparation for the on-site investigations, including cultural resource surveys, intake structure inspections, wetlands inspections, environmental assessments and soil borings for geotechnical assessments. However, since the on-site work did not begin until October 2012 (i.e., after crop harvest); the field work associated with these tasks is not included in the 2012 reporting period.

Expenditures for a Nuclear Technical Assessment of the small modular reactors are also shown on Table 1 and focus on evaluating the technical viability of domestic small modular reactor technology. The initial technical assessment benchmark includes evaluations of the four active small modular reactor designs in areas such as passive safety systems integration, security requirements, operation expectations and nuclear licensing. The four active small modular

reactor vendors all have differing physical designs under development of different generation capacity which would impact how the units are constructed, operated and deployed at a potential Iowa site. During the past 12-month period, MidAmerican staff has closely followed the Department of Energy's funding opportunity announcement of \$425 million in available matching funds for the design and licensing of small modular reactors. MidAmerican actively participated in two small modular reactor vendor industry advisory committees and in the Nuclear Energy Institute's small modular reactor licensing task force to obtain first-hand the development status of these small modular reactor technologies. In addition, MidAmerican staff has participated in meetings with the Secretary of Energy's Advisory Board to discuss utility incentives for the deployment of small modular reactors in locations like Iowa. This technical assessment will continue as the small reactor vendor designs move to being licensed and tested and as the Nuclear Regulatory Commission evaluates the licensing requirements. Expenditures for the Technical Assessment phase of the nuclear feasibility review totaled \$39,561.26 for the 12-months ending September 30, 2012.

The feasible deployment of a small modular reactor at an Iowa site is also dependent upon a clear understanding of the only other proven, dispatchable, baseload generation alternative in a carbon constrained Iowa environment; one fueled by natural gas. Because the majority of the cost in building and operating a natural gas plant is related to the delivered fuel price, MidAmerican selected a nationally recognized consultant, NERA, for this effort. NERA was requested to forecast the natural gas commodity price forecasts, pipeline delivery costs and risks associated with natural gas supplies during the expected life of an alternative nuclear facility. To fully evaluate this critical component of the economic assessment, NERA utilized the Department of Energy's National Energy Modeling System ("NEMS") model. This nationally recognized model assesses natural gas prices using an integrated modeling of the interplay between energy sectors (e.g., electricity generation and transportation), fuel alternatives (e.g., oil, renewable, coal), and various economic and energy utilization conditions, looking both domestic and internationally.

In addition, NERA was requested to evaluate the economic development impacts on the economies of the local site community, Iowa, the upper Midwest and the nation in terms of direct and indirect job creation and other economic indicators when fuel intensive (i.e., natural gas) and

capital and labor intensive (i.e., nuclear) generation alternatives are compared. To complete this assessment NERA is using the Regional Economic Models, Inc. (REMI) Policy Insights Plus (“PI+”) model. Expenditures related to the evaluation of nuclear alternatives and Iowa economic development impacts are shown on Table 1 under Natural Gas Forecast and Financial and Economic Analysis which totaled \$447,543.48 for the 12-months ending September 30, 2012.

In order to undertake preparations for the possible construction of nuclear generating facilities, MidAmerican identified land parcels within the Fremont and Muscatine county candidate areas identified by the Phase 1 siting study. Because the Phase 1 siting study was only based upon information from public sources; on-site investigations were necessary to confirm that the publically available data was consistent with on-site observations. These land ownership options<sup>3</sup> were obtained by MidAmerican to permit the on-site investigations necessary for site characterization and the possible installation of a meteorological data collection tower. On-site information collection activities were discussed with the land option owners prior to conducting the evaluations, and in most cases involve a historical interview with the property owner or farm manager to identify potential archeological and environmental areas of interest. On-site investigations were scheduled with the landowner to not interfere with the maturation of the existing crops on the land and harvesting. In total, MidAmerican obtained options for 1,467.5 acres (excluding residences) at the two potential sites at an average price of \$1,101/acre. Under the terms of the option agreements, the cost of the option can be deducted from the option specified sale price, if the land is purchased following the on-site evaluations. The costs for the procurement of land rights necessary to complete the site evaluations and lock in potential purchase prices totaled \$1,837,370.50 for the 12-months ending September 30, 2012.

In the December 22, 2011, non-binding project estimate of expenditures MidAmerican provided in response to the Board’s request, 2012 period incremental costs were projected at \$10,710,000 (\$11,340,000 incremental and non-incremental) for the second reporting period. That expenditure plan was based upon finishing the acquisition of land options in March 2012, conducting on-site investigations in the summer and possible acquisition of land in September 2012. MidAmerican decided after this filing a better approach would be to complete land option

---

<sup>3</sup> Two residences which were for public sale were purchased, since obtaining an option for these residences was not reasonable.

negotiations in the summer and on-site investigations after the fall harvest; therefore only \$2.5m of rider costs were incurred during the second reporting period. Essentially, the on-site evaluations and land procurements have been deferred until the third reporting period as discussed below. This also attributes to the current rider over-collection balance of \$5,747,011.32 as of September 30, 2012.

### **Forward Looking Expenditures through October 2013**

During the next 12-month period ending September 30, 2013, it is expected that MidAmerican will complete all anticipated on-site evaluations at the potential site locations. The objective of these on-site evaluations will not be to complete a full licensing application for a preferred site location. Rather, a limited amount of data will be collected in an effort to identify potential site issues early on in the site selection process that may require significant mitigation expenditures to meet the NRC site regulatory requirements. These NRC requirements are listed throughout NRC Regulatory Guide 4.7.

MidAmerican will also complete the natural gas base load generation alternative assessment and the Iowa economic development comparison (assessment report) initiated in the second cost recovery period. This report coupled with the final site selection report and the nuclear business plan will form the basis of a submittal to the Board in spring 2013.

If the assessment reports indicate continued data gathering at one or both of the sites should continue; nuclear support has been included in the next 12-month forecast to ensure the process and procedures are in place to ensure the data collection is suitable to meet Nuclear Regulatory Commission requirements.

Finally, if it is concluded the Fremont and Muscatine county sites are a viable preferred site for a nuclear or natural gas generating site, MidAmerican will assess if ownership rights should be retained. These land rights could be retained through execution of the land purchase at the prices specified in the options, extending the land option term, or a combination of these. These combinations could be influenced by the specific option agreement terms and conditions negotiated with the particular landowners of the potential sites. The values shown on Table 2 provide a range of acquiring no land rights after the on-site assessments to purchasing all land rights for both potential sites currently being evaluated.



Table 2 is a summary of the forecasted costs to be incurred during the final 12-month period for completing the studies currently in progress and potentially extending the land rights to a preferred site(s) assuming the site(s) are found to be viable.

**Table 1: October 1, 2011 through September 30, 2012 Expenditures**

<b>MidAmerican Energy Company Expenditures Associated with Carbon Reduction Rider</b>		
	October 1, 2011 through September 30, 2012	Cumulative Total through September 30, 2012
MidAmerican Incremental Labor and Expenses Subtotal	\$ 147,685.19	\$ 563,966.06
Purchase Orders (PO)		
Nuclear Site Characterization	\$ 55,791.45	\$ 1,137,856.09
Nuclear Business Planning	\$ 227.84	\$ 393,954.10
Nuclear Technical Assessment	\$ 39,561.26	\$ 193,003.23
Nuclear Support	\$ -	\$ 255,419.06
Natural Gas Forecast, Financial and Economic Analysis	\$ 447,543.48	\$ 447,543.48
Property Rights	\$ 1,837,370.50	\$ 1,837,370.50
PO Subtotal	\$ 2,380,494.53	\$ 4,265,146.46
Rider Costs Total	\$ 2,528,179.72	\$ 4,829,112.52
Rider Collections	\$ (5,002,261.60)	\$ (10,576,123.84)
MEC Non-Rider Costs	\$ 641,753.76	\$ 1,364,353.79

**Table 2: Projected October 1, 2012 through September 30, 2013 Expenditures**

<b>MidAmerican Energy Company Forecasted Expenditures Associated with Carbon Reduction Rider</b>		
	October 1, 2012 through September 30, 2013	Cumulative Total through September 30, 2013
MidAmerican Incremental Labor and Expenses Subtotal	\$ 224,000	\$ 788,000
Purchase Orders (PO)		
Nuclear Site Characterization	\$ 1,473,000	\$ 2,611,000
Nuclear Business Planning	\$ 50,000	\$ 444,000
Nuclear Technical Assessment	\$ 50,000	\$ 243,000
Nuclear Support	\$ 110,000	\$ 365,000
Natural Gas Forecast, Financial and Economic Analysis	\$ 157,000	\$ 605,000
Property Rights <sup>4</sup>	\$ 293,000 to \$ 16,938,000	\$ 2,130,000 to \$ 18,775,000
Total Potential Costs	\$ 2,357,000 to \$ 19,002,000	\$ 7,186,000 to \$ 23,831,000
MEC Non-Rider Costs	\$ 226,000	\$ 1,590,000

<sup>4</sup> The top of the range shown assumes MidAmerican purchases all land for both potential sites currently being evaluated. If only one site is acquired through purchase or option extension, the property rights value would fall more near the middle of the range.