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MidAmerican Energy Company

Electric Power Generation Facility Budget Update

for January 1, 2014 through December 31, 2023

Submitted to the Iowa Utilities Board: April 1, 2014

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EXECUTIVE SUMMARY

Iowa Code §476.6(21) requires rate-regulated utilities to develop a multi-year plan and budget for managing regulated emissions from their coal-fueled facilities in a cost-effective manner, and file updates at least every two years.

MidAmerican Energy Company ("MidAmerican") filed its initial Plan and Budget on April 1, 2002. MidAmerican has filed Plan and Budget updates with the Iowa Utilities Board ("Board") at least biennially since this time, and all have been previously approved by the Board. The last Updates covered 2012 and were filed on April 1, 2012.

This 2014 Update, covering the period from January 1, 2014 through December 31, 2016, and including future plans through December 31, 2023, [redacted] This update includes the addition of activated carbon injection ("ACI") at Louisa Generating Station ("Louisa"), Neal Energy Center Unit 3 ("Neal Unit 3"), Neal Energy Center Unit 4 ("Neal Unit 4"), and Walter Scott Energy Center Unit 3 ("WSEC Unit 3").

Throughout the 2014 Update, the costs shown reflect the total plant costs, which are then allocated to joint owners unless they are identified as MidAmerican only costs. The table below shows MidAmerican's share of total capital and operation and maintenance ("O&M") during the plan period.

MidAmerican's Share of Investments included in the 2014 Budget Update Calendar Years 2014 – 2016

Year	Planned Capital	Planned O&M
2014	[redacted]	[redacted]
2015	[redacted]	[redacted]
2016	[redacted]	[redacted]
Total	[redacted]	[redacted]

The capital investments outlined above represent continuing dry scrubber and baghouse projects to be installed at Neal Unit 3 and capital spare parts for Neal Unit 4, in addition to planned projects to install selective non-catalytic reduction ("SNCR") at Neal Unit 3 and Neal Unit 4, turbine upgrades at Neal Unit 3 and ACI systems at Neal Unit 3, Neal Unit 4, WSEC Unit 3, and Louisa. O&M expenditures listed above are largely costs associated with the dry scrubber and baghouse operations at WSEC Unit 3, Neal Unit 3 and Louisa, with some of the O&M expenditures associated with the emissions controls projects at Neal Unit 3 and Neal Unit 4 starting in late 2014 and continuing in 2015.

In addition, MidAmerican will be responsible to pay a share of the costs of the Ottumwa Generating Station ("OGS") Combustion Initiative. The plan and budget amounts for 2014-2016 for OGS are expected to be included in the Interstate Power and Light Company EPB.

The 2014 Plan and Budget Update fully complies with the requirements of Iowa Code 476.6(21) since:

- The Plan demonstrates that MidAmerican meets applicable state environmental requirements;
- The Plan and Budget is reasonably expected to achieve cost-effective compliance with applicable state environmental requirements and federal ambient air quality standards, and
- The Plan and Budget reasonably balances costs, environmental requirements, economic development potential, and reliability of the electric generation and transmission systems.

The next update to the Plan and Budget is expected to be filed by April 1, 2016, or earlier if key assumptions or regulatory drivers change that significantly alter the Plan or Budget.

I. MIDAMERICAN'S BUDGET

A. STATUS OF 2012-2014 UPDATE

Annually, by February 15, MidAmerican files with the Board a report detailing its actual EPB activities during the preceding calendar year. These documents are available from the Board's electronic filing system. In summary, MidAmerican's approved 2012 Update included two projects that were planned to be completed and in service during the previous Plan period and two projects that were expected to be started during the Plan period. These specific projects are listed below, along with the status of each project:

(1) Neal Unit 4 Scrubber and Baghouse started construction in 2011 and was completed and started operation in December 2013.

(2) Neal Unit 4 Turbine Efficiency Upgrade Project was completed and started operation in December 2013.

(3) Neal Unit 3 Scrubber and Baghouse started construction in 2011 [redacted]

(4) Neal Unit 3 Turbine Efficiency Upgrade Project was started [redacted]

The 2012 Update identified six (6) new projects to be started and are listed below:

(1) Neal Unit 3 SNCR project was started in January 2013.
(2) Neal Unit 4 SNCR project was started in January 2013.
(3) Neal Unit 3 ACI project was started in November 2013.
(4) Neal Unit 4 ACI project was started in November 2013.
(5) Louisa ACI Project was started in November 2013.
(6) WSEC Unit 3 ACI project was started in November 2013.

1) Nitrogen Oxide ("NOx") Reductions

Two new NOx reduction projects, SNCR projects at Neal Units 3 and 4 were initiated during the 2012 Plan period. Emissions reductions for both of these projects are expected to reduce NOx emissions at the respective units from a baseline of [redacted]

2) Sulfur Dioxide ("SO_2") Reduction

MidAmerican entered into agreements for project construction for both Neal Unit 3 and Neal Unit 4 dry scrubber and baghouse projects that began in the spring of 2011. The Neal Unit 4 dry scrubber and baghouse was completed and operational in December 2013. The Neal Unit 3 dry scrubber and baghouse is scheduled to be completed and operational in May 2014. [redacted]

Summary of Neal Unit 3 and Neal Unit 4 Scrubber / Baghouse Expected Costs

Project	2012 Plan Update Capital	2014 Plan Update Capital	Amount of Change in 2012 Plan
Neal Unit 3	[redacted]	[redacted]	[redacted]
Neal Unit 4	[redacted]	[redacted]	[redacted]
Total Neal Unit 3 & Neal Unit 4 Dry Scrubber / Baghouse Budget Change			[redacted]

Additional information on the status of the SO_2 and NOx projects can be found in the Environmental Plan and Budget Confidential Exhibits 1 and 2.

B. DEVELOPMENT OF THE 2014 BUDGET UPDATE

Based on the environmental regulations and associated emission reduction targets outlined in the 2014 Plan Update, MidAmerican continues to re-evaluate its least cost alternatives to comply with the emission reduction targets.

MidAmerican installed a dry scrubber and baghouse at Louisa in December 2007 and at WSEC Unit 3 in May 2009. MidAmerican has also continued to investigate other SO_2 reduction projects to meet the Clean Interstate Rule ("CAIR") and ensure compliance with the associated emission reduction targets. As a result of these continued investigations, MidAmerican has proceeded with implementation of the scrubber and baghouse projects presented in the 2012 Plan at Neal Unit 3 and Neal Unit 4. These controls were completed at Neal Unit 4 in December 2013 [redacted]

In addition to reducing sulfur emissions, the dry scrubber and baghouse projects also reduce particulate matter emissions, reduce acid gas emissions, lower opacity, and prepare the units for future reductions in mercury emissions.

By installing the scrubbers at Louisa and WSEC Unit 3 prior to the CAIR SO_2 requirements, which began on January 1, 2010, MidAmerican was able to bank additional SO_2 allowances to provide for more timely and cost-effective additions of SO_2 controls at its other facilities. This strategy allowed MidAmerican to phase in its emission controls, avoid entering into contracts when equipment and labor demand were at their peaks, and pursue additional controls when equipment and labor demands are relatively low.

Due to the requirements of the Mercury and Air Toxics Standards ("MATS"), efforts are underway with the Neal Unit 3 and Neal Unit 4 scrubber and baghouse projects to ensure the units can timely meet applicable emission standards in the 2014/2015 timeframe.

1) Budgeted NOx Controls

Completion of the WSEC 2 project in 2008 concluded the low NOx burner and overfire air system installations across MidAmerican's coal-fueled fleet. These efforts have significantly reduced MidAmerican's NOx emissions to help meet the initial CAIR requirements to minimize its exposure to the NOx allowance market and are considered to be the lowest cost control projects to reduce NOx emissions.

SNCR is another method to lessen NO_x emissions on coal-fired plants. The SNCR became operational in 2014 at Neal Unit 4. [redacted]

2) Budgeted Mercury Controls

ACI projects will be necessary to comply with the recently promulgated MATS at Louisa, WSEC Unit 3, Neal Unit 4 and Neal Unit 3. The MATS rule has a compliance date of April

16, 2015. In order to achieve compliance with the mercury reduction requirements of the MATS, the ACI projects will be installed during 2014 and be in full operation by April 2015.

ACI systems are most effective in controlling mercury when they are placed ahead of fabric filters. As outlined above, Louisa, Neal Unit 4, and WSEC Unit 3 have installed fabric filters in conjunction with their scrubber installations, and fabric filters are also currently under construction at the Neal Unit 3 dry scrubber and baghouse projects. Uncontrolled mercury emissions on Powder River Basin-fueled coal units are estimated to average about 6.5 lb/TBtu. [redacted]

The addition of ACI systems at Louisa, WSEC 3, Neal Unit 3 and Neal Unit 4 in Confidential Exhibits 1 and 2 reflects the capital investments and O&M expenditures necessary for compliance with the MATS rule.

3) Budgeted Greenhouse Gas Emission Controls

As a result of federal requirements effective January 2, 2011, emission controls projects at Neal Unit 3 and Neal Unit 4 were subject to a Best Available Control Technology ("BACT") review and Prevention of Significant Deterioration ("PSD") permitting for greenhouse gas ("GHG") emissions.

PSD permitting requires that regulated pollutants that exceed established triggering thresholds be evaluated for BACT, and those appropriate emissions limits are set based on the selected technology after considering a number of factors. The BACT analysis completed for the Neal Unit 3 and Neal Unit 4 projects determined that efficiency upgrades in the steam turbines be applied as BACT.

In order to meet these permit requirements for GHG emissions, MidAmerican entered into a purchase agreement for upgraded low-pressure turbines at Neal Unit 3 and Neal Unit 4 that will improve overall plant efficiency by at least [redacted]. The Neal Unit 4 turbine upgrade was completed and became operation in December 2013. [redacted]

C. DESCRIPTION OF EMISSION CONTROL TECHNOLOGIES

1) Dry Scrubber

In a dry scrubber, a lime reagent is used to form calcium hydroxide slurry. The slurry contacts the flue gas when it is sprayed as fine droplets in a spray dryer absorber vessel. The spray dryer absorber vessel is installed in the flue gas ductwork upstream of the particulate collection device. It has sufficient residence time to allow the SO_2 in the flue gas to react with the lime as the water droplets evaporate, forming a dry byproduct – calcium sulfite.

This byproduct is collected in the bottom of the spray dryer vessel and in the downstream particulate collection device. A portion of the collected dry solids is often recycled in the spray dryer to minimize lime reagent utilization. The collected dry solids are typically transported to a landfill disposal site, however alternative beneficial uses are currently being sought.

The primary particulate collection device utilized in these systems is a pulse-jet fabric filter baghouse. The use of the baghouse optimizes the SO_2 removal efficiency, since some of the SO_2 removal actually occurs within the filter cake on the baghouse filter bags.

The cost of the lime reagent is higher than the limestone typically used in wet scrubber systems; however the dry scrubber capital cost is approximately 20%-30% less than a wet scrubber system and utilizes less auxiliary power. Maximum SO_2 removal with a dry scrubber and baghouse combination is typically 90% or an outlet concentration of 0.08 lb /mmBtu (whichever is limiting).

2) Low NO_X Burners

Low NO_X Burners ("LNBs") reduce NO_X formation by reducing the amount of air in the primary combustion zone. This creates a fuel-rich reducing environment in the zone and lowers the peak flame temperature, both of which reduce NO_X formation. The balance of the air required for complete combustion is introduced around the primary combustion zone where the fuel/air mixture has dropped to less than 2800°F. The lower fuel/air temperature at this point minimizes additional NO_X formation.

LNBs have been widely employed as an economical means to achieve moderate NO_X reduction. Of the 239 existing units subject to the 1996 Title IV (Acid Rain Program) Phase I NO_X limitations, 141 units, or 59%, utilized LNBs to meet the emissions limits. LNBs have been installed in all coal-fueled generating stations in MidAmerican's fleet with the exception of Neal Unit 1, as LNBs are not applicable to cyclone-fire furnaces. NO_X reductions reported with LNBs typically range from 10% to 50%.

3) Overfire Air System

The operating principle behind overfire air ("OFA") is to divert a portion of the existing combustion airflow away from the burners and up to air injection ports located above the top burner elevation. The resultant combustion air staging reduces NO_X because the burners are operated with lower air-to-fuel ratios, e.g., fuel rich. This locally limits oxygen availability thereby reducing NO_X formation at the burners. OFA further reduces NO_X formation by delaying fuel and air mixing. OFA systems do not reduce the total amount of combustion air but merely redistribute a portion of the air away from the burner zone.

OFA is categorized as separated OFA ("SOFA") or close-coupled OFA ("CCOFA") depending on the burner and OFA port arrangement. SOFA systems involve installation of air port penetrations in the boiler waterwalls at an elevation about 8' to 15' above the top row

of burners, whereas CCOFA ports are located immediately above the burners. All of MidAmerican's low NOx projects utilized the more effective separated OFA design, with the exception of WSEC Unit 1 which did not utilize OFA.

OFA technology is applicable to all pulverized coal and cyclone boiler types and therefore to all of the MidAmerican units. Although the NO_X reductions achieved with OFA are generally modest, OFA is relatively inexpensive to retrofit. OFA is often used in conjunction with LNBs and other NO_x technologies as low cost methods of reducing NO_X. SOFA produces greater NO_X reduction than CCOFA due to the higher degree of combustion staging. A reduction in NO_X emissions of 10% to 30% is typical for OFA. All of the coal-fueled units in the MidAmerican fleet utilize OFA with the exception of WSEC Unit 1.

4) Selective Non-Catalytic Reduction (SNCR)

SNCR is a post-combustion technology that injects anhydrous ammonia, aqueous ammonia, or aqueous urea into the flue gas within a temperature range of 1600^oF- 2100^oF. In this temperature range, the ammonia reacts with NO_X in the presence of oxygen to form nitrogen and water.

Multiple injection levels can be used to follow the optimum gas temperature through the boiler and thereby maintain high NO_X reduction efficiencies as the boiler load changes. Placement of the injection probes is critical because at flue gas temperatures above 2100^oF, ammonia and urea react with oxygen to form additional NO_X. Excess ammonia at temperatures below 1600^oF lead to formation of ammonium salts which can plug air heater baskets and contaminate fly ash to the point of being unsalable and objectionable to handle due to its strong odor. The ammonia concentration leaving the boiler is generally controlled to about5 ppm.

SNCR is applicable to all of the MidAmerican coal-fueled units that do not have Selective Catalytic Reduction ("SCR") installed. While historically this technology was generally only applicable for units 300 MW and smaller, more robust modeling techniques have allowed the technology to be proven on units up to 750MW with limited ammonia slip. A twenty to thirty percent reduction in NO_X emissions is typical for SNCR systems; however, the outlet NO_X from the system is typically no lower than 0.15 lb/mmBtu due to chemical limitations. SNCR installations typically have installed capital costs that are less than twenty-five percent of SCR installations at coal-fueled facilities.

5) Activated Carbon Injection (ACI)

The ACI process removes gaseous elemental and oxidized mercury compounds by injecting porous powdered carbon into the flue gas. The mercury adsorbs on the surface of the porous carbon and is collected. ACI is best used in a dry system where the particulate collection device is a baghouse. A baghouse is preferred because carbon is not as effectively collected in an electrostatic precipitator, nor does it provide the same level of control.

Activated carbon has been shown to remove up to 90% of the mercury in a flue gas stream when used in conjunction with a baghouse. In most instances, the halogenated carbons appeared to be more effective in collecting mercury at lower injection concentrations than the plain carbons. MidAmerican utilizes halogenated carbon in the ACI system at WSEC Unit 4 for mercury control and is planning to install ACI at each coal-fueled generating station that uses a baghouse for particulate control to comply with the MATS.

The adsorption of mercury by activated carbon is strongly dependent upon the temperature of the flue gas. Field-testing has indicated a dramatic decrease in the removal of mercury at gas temperatures above 300°F. The target temperature is in the range of 160°F to 250°F. The flue gas temperature following a dry scrubber and baghouse installation is typically 160°F, making it optimal for this type of mercury control. Additionally, the activated carbon which collects on the baghouse filter bags aids in further collecting mercury since the flue gas must pass through this carbon dust layer before exiting the system.

6) Turbine Efficiency Upgrades

With the EPA's new regulations relating to GHG emissions, PSD permitting requirements now also include an analysis of all the emission controls available to a facility for controlling each applicable pollutant. The outcome of this analysis is selection of BACT. The available controls for GHG emissions from a power plant include such items as carbon capture and sequestration, thermodynamic cycle design, fuel selection, and plant efficiency improvements. For the Neal Unit 3 and Neal Unit 4 projects, GHG BACT was found by Iowa Department of Natural Resources ("IDNR") to be efficiency improvement projects including the installation of higher efficiency steam turbine sections. More efficient turbines or turbine sections directly improve overall plant heat rate, requiring less fuel per MW output.

Turbine upgrades can vary from plant to plant and can include partial upgrades of turbines or entire new turbine assemblies. The Air Quality Construction Permits received by MidAmerican from the IDNR for the Neal Unit 3 and Unit 4 emission control projects require certain levels of turbine efficiency improvements as well as caps on total CO_2 emissions. In general, the heat rate improvement from turbine efficiency upgrades is dependent upon the original design of the turbine or turbine section being upgraded and physical limitations of other supporting equipment.

Typical heat rate improvements from turbine efficiency projects can range from 1-3%, or an improvement of 100 to 330 Btu/kWh, at most facilities. These heat rate improvements can generally offset the heat rate degradation associated with the additional plant auxiliary power required to operate dry scrubber and baghouses used to control SO_2 emissions.

D. MIDAMERICAN'S 2014 BUDGET SUPPORTING DETAIL

Fully complying with the CAIR and the MATS requirements will have significant impacts on MidAmerican's coal-fueled generating stations. In addition to the capital expenditures, there will be increased O&M expenses and potentially longer outage durations to install the equipment.

[redacted] Based on the published, proposed, and expected rules, new or upgraded emission controls will be required for a significant number of coal-fueled units across the country within the same, short term compliance date. MidAmerican's phased approach to installing controls helps to balance the demands of the labor, equipment availability, and generation availability, while minimizing costs for its customers.

MidAmerican believes that additional dry scrubbers, baghouses, SCRs, SNCRs, and mercury controls may be required in addition to the projects completed and identified to date. These additional controls will be evaluated for inclusion in future Plan updates.

It is the responsibility of Interstate Power and Light Company, as plant operator of the Ottumwa Generating Station, to plan, schedule, and install controls at this facility. As such, MidAmerican has not included any plans by Interstate to install environmental controls at Ottumwa as part of the 2014 Update approval period through 2016.

The following table includes a summary of MidAmerican's existing operated coal-fueled plants, along with generating capacity and MidAmerican ownership. Although information for WSEC Unit 4 is provided, no emission controls or associated funding is being requested as part of the 2014 Update.

Summary of MidAmerican's Operated Coal-Fueled Plants
Generating Capacity & Percent Ownership

Unit	Net Capacity (MW)	MidAmerican Ownership
Neal Unit 1	135	100.00%
Neal Unit 2	295	100.00%
Neal Unit 3	515	72.00%
Neal Unit 4	644	40.57%
Louisa	745	88.00%
Riverside Unit 3	5	100.00%
Riverside Unit 5	130	100.00%
WSEC Unit 1	45	100.00%
WSEC Unit 2	88	100.00%
WSEC Unit 3	690	79.10%
WSEC Unit 4	800	59.66%

Listed below are the specific details of the 2014 Update covering the additional controls at MidAmerican's coal-fueled generating units for the period January 1, 2014 through December 31, 2016. Several projects will be initiated in the next two years, along with continuation of the Neal Unit 3 dry scrubber and baghouse projects. The Neal Unit 4 dry scrubber and baghouse project was placed in service in December 2013. [redacted]

1) WSEC Unit 1

[redacted]

Controls at WSEC Unit 1 – 2014 through 2016

	NO_X Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.35	0.68	6.85	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

2) WSEC Unit 2

[redacted]

Controls at WSEC Unit 2 – 2014 through 2016

	NO_X Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.13	0.68	6.85	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

3) WSEC Unit 3

[redacted]

New Controls at WSEC UNIT 3– 2014 through 2016

	NO_X Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.18	0.10	5.89	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

4) Louisa

[redacted]

New Controls at Louisa – 2014 through 2016

	NO_X Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.18	0.10	6.85	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

5) Neal Unit 1

[redacted]

Controls at Neal Unit 1 – 2014 through 2016

	NO_X Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.45	0.68	6.85	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

6) Neal Unit 2

[redacted]

Controls at Neal Unit 2 – 2014 through 2016

	NO_x Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.24	0.68	5.89	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

7) Neal Unit 3

[redacted]

New Controls at Neal Unit 3 – 2014 through 2016

	NO_X Emissions (lb/mmBtu)	SO_2 Emissions (lb/mmBtu)	Hg Emissions (lb/TBtu)	GHG Emissions (lb/MWh)	Totals
Current	0.25	0.68	5.89	2,450	N/A
Controlled	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

8) Neal Unit 4

[redacted]

New Controls at Neal Unit 4 – 2014 through 2016

	NO_X Emissions (lb/mmBtu)	**SO_2 Emissions (lb/mmBtu)**	**Hg Emissions (lb/TBtu)**	**GHG Emissions (lb/MWh)**	**Totals**
Current	0.25	0.68	5.89	2,580	N/A
Controlled	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

9) Riverside Unit 5

[redacted]

Controls at Riverside Unit 5 – 2014 through 2016

	NO_x Emissions	SO_2 Emissions	Hg Emissions	Totals
Current Emissions	0.21	0.68	5.89	N/A
Controlled Emissions	[redacted]	[redacted]	[redacted]	[redacted]
% Reduction	[redacted]	[redacted]	[redacted]	[redacted]
Increase in Heat Rate (Btu/kWH)	[redacted]	[redacted]	[redacted]	[redacted]
Decrease in Output (MWs)	[redacted]	[redacted]	[redacted]	[redacted]
Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]
Fixed O&M Cost (2014 $/Year)	[redacted]	[redacted]	[redacted]	[redacted]
Var. O&M Cost (2014 $/MWH)	[redacted]	[redacted]	[redacted]	[redacted]
Control Date	[redacted]	[redacted]	[redacted]	[redacted]

E. EQUIPMENT BIDDING AND INSTALLATION STRATEGY

MidAmerican plans to continue pursuing the installation of the emission control equipment by following its competitive bidding process and completing the installations during the units' regularly scheduled outages.

[redacted]

F. OTHER PLAN CONSIDERATIONS

Development of the 2014 Update also considered economic development potential, and the reliability of the electric generation and transmission system.

1) Economic Development

By reducing emissions, the air emission increment available for other industrial developments will increase. More importantly, reduced emissions will maximize the opportunity for Iowa to avoid non-attainment status. Non-attainment status can be a significant economic development detriment. MidAmerican's implementation strategy occurs across the state, resulting in air quality benefits in all areas.

A significant number of jobs are created during the construction period associated with environmental installations. This number can range from a few dozen for the smaller SNCR, turbine upgrade, and ACI projects, to over 200 for the larger scrubber and baghouse projects. Furthermore, some additions to MidAmerican's plant operations and maintenance staffing have occurred as a result of these projects.

2) Transmission System Reliability

[redacted]

3) Generation System Reliability

[redacted]

II. SUMMARY OF 2014 BUDGET UPDATE

Environmental Plan and Budget Confidential Exhibit 1 (Capital Investments) and Environmental Plan and Budget Confidential Exhibit 2 (O&M expenses) summarize MidAmerican's 2014 Regulated Emissions Budget Update for the coal-fueled generating stations.