

SECTION 285.6100
SCHEDULE F-4
Additions to Plant in Service Since the Last Rate Case
Test Year Ending December 31, 2012
Utility: MidAmerican Energy Company
Docket No. 13-XXXX

Individual Responsible: Winston A. Morrill

Line No.	Description (a)	Date Project Started (b)	Completion Date (c)	Completion Cost (d)	Reason for Project (e)	Alternatives Considered (f)	List of Reports (g)
1	WS3-SO2 Scrubber	11-2006	12-2013	164,375,993	To comply with EPA's required emission limits for SO ₂ , NO _x , mercury and air toxics in response to EPA's MATS, CAIR (or replacement) and GHG Tailoring Rule	Dry scrubber/baghouse (selected). Wet scrubber.	Logic Behind Scrubber Additions. WPF-4 a Confidential Council Bluffs Unit 3 Scrubber and Baghouse Project Long-Form Investment Appraisal. WPF-4 b Confidential
2	LGS Scrubber Baghouse	12-2005	12-2010	138,857,229	To comply with EPA's required emission limits for SO ₂ , NO _x , mercury and air toxics in response to EPA's MATS, CAIR (or replacement) and GHG Tailoring Rule	Dry scrubber/baghouse (selected). Wet scrubber.	Logic Behind Scrubber Additions. WPF-4 a Confidential, Louisa Dry Scrubber and Baghouse Project. WPF-4 c Confidential
3	CB-Grimes 345kV Line	11-2002	06-2006	80,101,077	Increased transmission capacity and reliability.	161kV 500kV transmission lines considered.	Operational Impacts to CBEC-4 if CBEC-Grimes 345 kV Line is Late. WPF-4 d Confidential
4	OGS-AQCS Emissions Controls	12-2012	CWIP	76,642,323	To install an AQCS for emission control at OGS consisting of spray dryer absorbers (SDA), pulse jet fabric filters, and ACI for mercury control in anticipation of several pending EPA regulations, primarily the CAIR, CSAPR, or some successor to these rules, and the MATS, which collectively require significant reductions in SO ₂ , NO _x , mercury, and particulate matter.	Spray Dryer Absorber (selected). Circulating Dry Scrubber.	Letter describing the project and estimated cost dated December 10, 2012, from John Larson, Senior Vice President – Generation, Interstate Power and Light Company to Bill Fehrman, President, MidAmerican Energy Company. WPF-4 e Confidential

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5	N3 Scrubber Baghouse	05-2011	CWIP	69,331,460	To comply with EPA's required emission limits for SO ₂ , NO _x , mercury and air toxics in response to EPA's MATS, CAIR (or replacement) and GHG Tailoring Rule	Scrubber/baghouse (selected). Trona. ACI.	Logic Behind Scrubber Additions. WPF-4 a Confidential
6	N4 Scrubber Baghouse	05-2011	CWIP	64,279,070	To comply with EPA's required emission limits for SO ₂ , NO _x , mercury and air toxics in response to EPA's MATS, CAIR (or replacement) and GHG Tailoring Rule	Scrubber/baghouse (selected). Trona. ACI.	Logic Behind Scrubber Additions. WPF-4 a Confidential
7	Automatic Meter reading - total company	05-2006	12-2009	41,799,294	Economical methods, increased customer satisfaction and reduced safety exposures.	Manual, Electronic, Off-site automated, Gateway/home automation.	Automated Meter Reading Authorization for Expenditure May 2006. Final. WPF-4 f Confidential
8	Customer Service System	09-1996	07-1998	24,724,338	Replace customer service system.	CustomerOne! system selected from among the candidates (including then current MWP and IIGE systems).	Project Order Estimate and Authorizations WPF-4 g Confidential and WPF-4 h Confidential Direct Testimony of David J Levy in Docket No. 99-0534 WPF-4 i

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9	QC Turbine Retrofit Unit 1	02-2008	06-2011	29,099,104	To correct Low Pressure turbine inner casing erosion damage that was resulting in increased frequency of repairs and efficiency losses. The turbine shell was eroded away. On-going repair was deemed ineffective for long term operation of the component. Rotor blade attachments were exhibiting indications of Stress Corrosion Cracking causing more frequent inspections with the potential for future outage extensions. The Long Term Asset Management plan called for replacement of these components to arrest the degradation trend and support extended unit service life.	Replace LP turbine steam path casings, diaphragms, and rotors with a current, more efficient design (selected based on highest economic value based on financial analysis due to increase MWe output and reductions in inspection and repair costs) Continue to repair casings and rotors Purchase a seed rotor and casing Addition of steam reheaters Replace casings and purchase spare rotor per site. Use special coating technology to repair casings.	Quad Cities Turbine Retrofit BOD WPF-4 j Confidential, Quad Cities Turbine Retrofit GOC Minutes WPF-4 k Confidential, Quad Cities Turbine Retrofit BOD Resolution WPF-4 l Confidential

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10	QC Turbine Retrofit Unit 2	12-2006	04-2010	31,626,981	To correct Low Pressure turbine inner casing erosion damage that was resulting in increased frequency of repairs and efficiency losses. The turbine shell was eroded away. On-going repair was deemed ineffective for long term operation of the component. Rotor blade attachments were exhibiting indications of Stress Corrosion Cracking causing more frequent inspections with the potential for future outage extensions. The Long Term Asset Management plan called for replacement of these components to arrest the degradation trend and support extended unit service life.	Replace LP turbine steam path casings, diaphragms, and rotors with a current, more efficient design (selected based on highest economic value based on financial analysis due to increase MWe output and reductions in inspection and repair costs) Continue to repair casings and rotors Purchase a seed rotor and casing Addition of steam reheaters Replace casings and purchase spare rotor per site. Use special coating technology to repair casings.	Quad Cities Turbine Retrofit BOD WPF-4 j Confidential, Quad Cities Turbine Retrofit GOC Minutes WPF-4 k Confidential, Quad Cities Turbine Retrofit BOD Resolution WPF-4 l Confidential

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11	LGS LP Turbine Replacement	05-2006	03-2009	21,316,738	To improve output, efficiency, and reliability of the Louisa Generating Station (LGS) by modifying the generator, boiler and balance of plant equipment. Also, opportunity to improve plant output by implementing the latest technology in generator design and optimizing boiler capability. Existing problems include: exceeding boiler design limits due to increased boiler load, potential increase in equipment failures due to nearing end-of-life.	n.a.	n.a.
12	Railcar Acquisition	n.a.	n.a.	21,249,579	To acquire railcars for delivery of coal to MidAmerican's WSEC and Louisa power plants and for short term lease to other parties when capacity permits	n.a.	n.a.
13	CIPCO Asset Transfer	n.a.	n.a.	18,089,548	Asset trade for MEC taking over IPSCO customer related assets in return for investment in Walter Scott unit 4.	n.a.	n.a.
14	Transformers/Regulators	n.a.	n.a.	15,871,842	Transformers/regulators for new customer and replacements	n.a.	n.a.

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15	LGS Generator and Exciter	n.a.	n.a.	14,174,182	To rewind the generator stator, replace the motor and replace the exciter with a new static exciter. To improve the capability, efficiency, and reliability of the LGS facility by using more efficient and reliable components in the generator, boiler and balance of plant equipment.	n.a.	n.a.
16	Mobil Radio Project	n.a.	n.a.	13,588,102	MidAmerican's existing 450MHz radio system was to become FCC illegal after December 31, 2012. This project replaces that system.	n.a.	n.a.
17	Transformers/Regulators	n.a.	n.a.	13,510,430	Transformers/regulators for new customer and replacements	n.a.	n.a.
18	Transformers/Regulators	n.a.	n.a.	13,451,311	Transformers/regulators for new customer and replacements	n.a.	n.a.
19	345/161kV Transmission Line, Madison County to Southeast Polk County, IA	n.a.	n.a.	12,887,679	To provide load growth in the south east area of the Des Moines area.	n.a.	n.a.

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20	LGS Boiler Modifications	n.a.	n.a.	12,469,645	To procure and install modifications to the primary superheater and economizer sections with additional furnace cleaning equipment to improve boiler performance; also to replace air heater components to reduce air leakage and improve air heater performance.	n.a.	n.a.
21	Transformers/Regulators	n.a.	n.a.	12,123,599	Transformers/regulators for new customer and replacements	n.a.	n.a.
22	OGS-Montezuma 345kV	n.a.	n.a.	11,954,235	Ice storm damage replacement.	n.a.	n.a.
23	Transformers/Regulators	n.a.	n.a.	11,853,996	Transformers/regulators for new customer and replacements	n.a.	n.a.
24	Railcar Acquisition	n.a.	n.a.	10,941,347	See Project 63073-06 – 3 train sets purchased over 2 years – 2 in 2007 and 1 in 2008	n.a.	n.a.
25	Booneville-Norwalk 161kV	n.a.	n.a.	10,884,495	The line will provide a means of serving growing load on the south side of the Des Moines metro area. The line is part of a comprehensive plan for serving the Des Moines area. Several distribution substations will be connected to the line.	n.a.	n.a.

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26	CB3 LP turbine	n.a.	n.a.	10,819,676	To upgrade the WSEC Unit 3 low pressure turbine sections for improvement of the heat rate and gross generator output without increasing steam flow or changing steam conditions. To improve turbine cycle heat rate, lower LP turbine performance degradation rate and increase duration between required turbine overhauls. Also, to perform a routine maintenance inspection on the WSEC Unit 3 intermediate pressure turbine and control valves.	n.a.	n.a.
27	Transformers/Regulators	n.a.	n.a.	10,512,039	Transformers/regulators for new customer and replacements	n.a.	n.a.
28	Transformers/Regulators	n.a.	n.a.	10,191,905	Transformers/regulators for new customer and replacements	n.a.	n.a.
29	69kV/34.5kV Line Storm	n.a.	n.a.	9,852,216	Storm damage replacement.	n.a.	n.a.
30	Transformers/Regulators	n.a.	n.a.	9,568,713	Transformers/regulators for new customer and replacements	n.a.	n.a.

Confidential workpapers WP F-4(a) through WP F-4 (l) are available on MidAmerican's data room.