Residential Equipment
Central Air Conditioner (CAC)

Description: Central Air Conditioners < 65 MBTu with SEER 14 and above – must be SAVE-certified unless mini-split
Baseline: Federal Standard 13 SEER *
Useful Life: 15 Years *

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Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{SEER}}\right) \text{ x CAP x CFLH}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: baseline efficiency SEER 13.0
SEER: efficiency rating of new CAC (from application … range = 14.0 to 25.0)
CAP: capacity of new CAC in MBTu (from application … range = 8.0 to 65.0)
CFLH: 811 equivalent full load hours of cooling (calculated from Assessment)
LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$9.935 \text{ x (SEER} - \text{BASE) x CAP}$$

Incentives:

SEER 14-14.9:	$375
SEER 15-15.9:	$550
SEER 16 and above:	$750
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	26.34 yrs
Payback Post-Incentive:	3.41 yrs
Incentive/Cost Ratio:	87%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description

Residential Equipment
Central Air Conditioner – Quality Installation

Description: High Efficiency Central Air Conditioners with a SAVE Quality Installation
Baseline: High Efficiency Central Air Conditioners with a standard installation
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 6.678 \text{ x CAP}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

CAP: capacity of new CAC in MBTu (from application … range = 8.0 to 65.0)
LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm *:

Incremental Cost = $300

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	15.94 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful life is adjusted to be 75% of the baseline equipment based on discussions with ICF International.

Residential Equipment
Air Source Heat Pump (ASHP)

Description:	Air Source Heat Pump < 65 MBTu with SEER >= 14 or HSPF >= 8 – must be SAVE-certified unless mini-split
Baseline:	Federal Standard Air Source Heat Pump with 13 SEER and 7.7 HSPF *
Useful Life:	18 Years *

<u>Savings Algorithm *:</u>

$$\text{Cooling kWh} = \left(\frac{1}{\text{SEER(base)}} - \frac{1}{\text{SEER(act)}}\right) \text{ x CAP x CFLH}$$

$$\text{Heating kWh} = \left(\frac{1}{\text{HSPF(base)}} - \frac{1}{\text{HSPF(act)}}\right) \text{ x CAP x HFLH}$$

$$\text{Annual kWh} = \text{Cooling kWh} + \text{Heating kWh}$$

$$\text{Peak kW} = \text{Cooling kWh x } \frac{1}{8760} \div \text{LF}$$

SEER(base):	baseline efficiency SEER 13.0
SEER(act):	cooling efficiency rating of new ASHP (from rebate application … range = 14.0 to 25.0)
HSPF(base):	baseline efficiency HSPF 7.7
HSPF(act):	heating efficiency rating of new ASHP (from rebate application … range = 8.0 to 11.0)
CFLH:	794 equivalent full load hours of cooling (calculated from Assessment)
HFLH:	2,282 equivalent full load hours of heating (calculated from Assessment)
CAP:	capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
LF:	0.0712 load factor (based on Residential Heat – Cooling load shape)

<u>Incremental Cost Algorithm *:</u>

$$\text{Incremental Cost} = (\$9.916 \text{ x } (\text{SEER(act)} - \text{SEER(base)}) \text{ x CAP}) + (\$3.413 \text{ x } (\text{HSPF(act)} - \text{HSPF(base)}) \text{ x CAP})$$

<u>Incentives:</u>

SEER 14-14.9:	$375
SEER 15-15.9:	$550
SEER 16 and above:	$750
HSPF 8-8.9:	$25 additional to SEER rebate
HSPF 9 and above:	$50 additional to SEER rebate
Incentive Cap:	N/A
Financing:	none

<u>Simple Payback:</u>

Payback Pre-Incentive:	11.80 yrs
Payback Post-Incentive:	3.96 yrs
Incentive/Cost Ratio:	66%

<u>Comments:</u>

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

<u>Reasons for Revisions (01/01/2014):</u>

Description: Clarification of measure description

Residential Equipment
Air Source Heat Pump – Quality Installation

Description:	High Efficiency Air Source Heat Pump with a SAVE Quality Installation
Baseline:	High Efficiency Air Source Heat Pump with a standard installation
Useful Life:	14 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.804 \text{ x CAP}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

CAP: capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $300

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	4.11 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Useful life is adjusted to be 75% of the baseline equipment based on discussions with ICF International.

Residential Equipment
Ground Source Heat Pump (GSHP)

Description:	ENERGY STAR qualified Ground Source Heat Pump < 65 MBTu – must be SAVE-certified
Baseline:	Federal Standard Air Source Heat Pump with 11.18 Equivalent EER and 2.26 Equivalent COP*
Useful Life:	18 Years *

Savings Algorithm *:

$$\text{Cooling kWh} = \left(\frac{1}{\text{EER(base)}} - \frac{1}{\text{EER(act)}}\right) \text{ x CAP x CFLH}$$

$$\text{Heating kWh} = \text{BACKUP} + \left(\frac{1}{\text{COP(base)}} - \frac{1}{\text{COP(act)}}\right) \text{ x CAP x HFLH}$$

$$\text{Annual kWh} = \text{Cooling kWh} + \text{Heating kWh}$$

$$\text{Peak kW} = \text{Cooling kWh x } \frac{1}{8760} \div \text{LF}$$

EER(base):	baseline efficiency EER 11.18
EER(act):	cooling efficiency rating of new GSHP (from rebate application … range = 14.0 to 40.0)
COP(base):	baseline efficiency COP 2.26
COP(act):	heating efficiency rating of new ASHP (from rebate application … range = 3.0 to 6.0)
CFLH:	659 equivalent full load hours of cooling (calculated from Assessment)
HFLH:	669 equivalent full load hours of heating (calculated from Assessment)
CAP:	capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
BACKUP:	5,360.61 kWh savings due to not needing backup heating capability from an ASHP
LF:	0.0712 load factor (based on Residential Heat – Cooling load shape)

Incremental Cost Algorithm *:

Incremental Cost = ($0.6262 x (Annual kWh – BACKUP)) + $7,709.63

Incentives:

EER 14-17.9	$1,200
EER 18-22.9:	$1,800
EER 23 and above:	$2,400
COP 3-3.9:	$200 additional to EER rebate
COP 4-4.9:	$400 additional to EER rebate
COP 5 and above:	$600 additional to EER rebate
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	21.38 yrs	
Payback Post-Incentive:	4.35 yrs	(includes state and federal tax incentives)
Incentive/Cost Ratio:	80%	(includes state and federal tax incentives)

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure of description
Incentives: Clarification of incentive structure

Residential Equipment
Ground Source Heat Pump – Quality Installation

Description:	Ground Source Heat Pump with a SAVE Quality Installation
Baseline:	Ground Source Heat Pump with a standard installation
Useful Life:	14 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.804 \text{ x CAP}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

CAP: capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$300$$

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	3.38 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful life is adjusted to be 75% of the baseline equipment based on discussions with ICF International.

Residential Equipment
Furnace – Quality Installation

Description: Residential Furnace with a SAVE Quality Installation
Baseline: Residential Furnace with a standard installation
Useful Life: 15 Years *

Savings Algorithm:

$$\text{Annual Therms} = 0.552 \text{ x CAP}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

CAP: capacity of furnace in MBTu (from rebate application … range = 12.0 to 225.0)
LF: 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$300$$

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	11.06 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful life is adjusted to be 75% of the baseline equipment based on discussions with ICF International.

Residential Equipment
Furnace

Description: High Efficiency Furnace < 250 MBTu with AFUE 95% and above – must be SAVE-certified
Baseline: Federal Standard Efficiency Furnace < 250 MBTu with 78% AFUE*
Useful Life: 20 Years *

Savings Algorithm:

$$\text{Annual Therms} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{AFUE}}\right) \text{ x CAP x HF}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF}$$

BASE: baseline efficiency 0.7800 AFUE
AFUE: efficiency rating of new unit (from application…range = 0.9200 to 0.9800)
CAP: capacity of new unit in MBTu (from application)
HFLH: 9.165 heating factor (calculated from Assessment)
LF: 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = \$300 + (\$297 x (AFUE – BASE) x CAP)

Incentives:

AFUE 0.950 or greater	\$900

Simple Payback:

Payback Pre-Incentive:	10.34 yrs
Payback Post-Incentive:	5.07 yrs
Incentive/Cost Ratio:	51%

Comments:

* Baseline, useful life, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful life is adjusted to be 75% of the baseline equipment based on discussions with ICF International.

Reasons for Revisions (01/01/2014):

New measure

Residential Equipment
Boiler – Quality Installation

Reasons for Revisions (01/01/2014):

Measure Removed – Not supported by SAVE

Residential Equipment
Room Air Conditioner

Description: ENERGY STAR Window Air Conditioners
Baseline: Federal Standard
Useful Life: 9 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EER}}\right) \text{ x CAP x CFLH}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: from ENERGY STAR website
EER: efficiency rating of new unit (from rebate application … range = 10.0 to 12.0)
CAP: capacity of new unit in MBTu (from rebate application … range = 8.0 to 14.0)
CFLH: 243 equivalent full load hours of cooling (calculated from Assessment)
LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$3.468 \text{ x (EER} - \text{BASE) x CAP}$$

Incentives:

All Units: $35 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 16.40 yrs
Payback Post-Incentive: 1.31 yrs
Incentive/Cost Ratio: 92%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

Change measure name
Description: Clarification of measure of description
Savings Algorithm: Clarification of savings calculations
Incentives: Clarification of incentive structure

Residential Equipment
Furnace Fan (Furnace < 225 MBTu)

Description: ECM Motor – Gas Furnace < 225 MBTu
Baseline: Standard Motor *
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 469.05

Peak kW = 0

Incremental Cost Algorithm *:

Incremental Cost = $200

Incentives:

All Units: $75 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 5.37 yrs
Payback Post-Incentive: 3.36 yrs
Incentive/Cost Ratio: 38%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Furnace fans must be installed in furnaces < 225 MBTu and must achieve a CEE air handling ratio < 0.02.

Residential Equipment
Programmable Thermostat – Electric Cooling

Description: Programmable Thermostat – Electric Cooling
Baseline: Standard Thermostat – Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 80.14$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$33.29$$

Incentives:

All Installations:	$25 per thermostat
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.43 yrs
Payback Post-Incentive:	1.10 yrs
Incentive/Cost Ratio:	75%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican and that heat their homes with natural gas or propane.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Residential Equipment
Programmable Thermostat – Electric Heat Only

Description: Programmable Thermostat – Electric Heat Only
Baseline: Standard Thermostat – Electric Heat Only
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 489.79

Peak kW = 0

Incremental Cost = $33.29

Incentives:

All Installations: $25 per thermostat

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: instant
Incentive/Cost Ratio: 100%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking gas and electric service from MidAmerican who use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Equipment
Programmable Thermostat – Electric Heat + Electric Cooling

Description: Programmable Thermostat – Electric Heat + Electric Cooling
Baseline: Standard Thermostat – Electric Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 569.93

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $33.29

Incentives:

All Installations:	$25 per thermostat
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.16 yrs
Payback Post-Incentive:	0.29 yrs
Incentive/Cost Ratio:	75%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican and that heat their homes with electricity.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Residential Equipment
Programmable Thermostat – Gas Heat Only

Description: Programmable Thermostat – Gas Heat + Electric Cooling
Baseline: Standard Thermostat – Gas Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 21.12$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $33.29

Incentives:

All Installations: $25 per thermostat
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive:	2.34 yrs
Payback Post-Incentive:	0.58 yrs
Incentive/Cost Ratio:	75%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Residential Equipment
Programmable Thermostat – Gas Heat + Electric Cooling

Description: Programmable Thermostat – Gas Heat + Electric Cooling
Baseline: Standard Thermostat – Gas Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 80.14

Annual Therms = 21.12

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $33.29

Incentives:

All Installations: $25 per thermostat
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive:	1.53 yrs
Payback Post-Incentive:	0.38 yrs
Incentive/Cost Ratio:	75%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Residential Equipment
Refrigerator

Description: ENERGY STAR Refrigerator > 10 cubic feet
Baseline: Standard Efficiency Refrigerator > 10 cubic feet
Useful Life: 13 Years *

Savings Algorithm:

Annual kWh = Model dependant savings from ENERGY STAR data base

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $126.62

Incentives:

All Installations: $50 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 29.73 yrs
Payback Post-Incentive: 17.99 yrs
Incentive/Cost Ratio: 39%

Comments:

* Baseline, useful life, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Equipment
Freezer

Description:	ENERGY STAR Refrigerator > 10 cubic feet
Baseline:	Standard Efficiency Refrigerator > 10 cubic feet
Useful Life:	12 Years *

Savings Algorithm:

Annual kWh = Model dependant savings from ENERGY STAR data base

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $139.24

Incentives:

All Installations:	$50 per unit
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	17.92 yrs
Payback Post-Incentive:	11.48 yrs
Incentive/Cost Ratio:	36%

Comments:

* Baseline, useful life, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Equipment
Clothes Washer – Electric Dry

Description:	ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline:	Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life:	11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

MEF(base):	Baseline Modified Energy Factor 1.26
MEF(act):	Modified Energy Factor of new clothes washer (from application … range = 2.0 to 4.00)
CAP:	Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS:	394 annual washing loads (calculated from Assessment)
ADJ:	0.349 relative level of electric savings for units of this type based on ENERGY STAR data
LF:	0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations:	$150 per unit
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	8.02 yrs
Payback Post-Incentive:	5.91 yrs
Incentive/Cost Ratio:	26%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service from MidAmerican and who use electricity for clothes drying.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
Cost Allocation: Added measure cost allocation
MEF(act): Clarification of factor range
VCF: Acronym change from CAP to VCF

Residential Equipment
Clothes Washer – Electric Water Heat

Description:	High Efficiency Clothes Washer with MEF >= 1.72 and Water Factor < 9.0
Baseline:	Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life:	11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

MEF(base):	Baseline Modified Energy Factor 1.26
MEF(act):	Modified Energy Factor of new clothes washer (from application … range = 1.72 to 4.00)
CAP:	Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS:	394 annual washing loads (calculated from Assessment)
ADJ:	0.629 relative level of electric savings for units of this type based on Energy Star data
LF:	0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $457.83 x (MEF(act) − MEF(base))

Incentives:

All Installations:	$150 per unit
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	---- yrs
Incentive/Cost Ratio:	--%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service from MidAmerican and who use electricity for water heating and clothes drying.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

New measure

Residential Equipment
Clothes Washer – Electric Water Heat + Electric Dry

Description: ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline: Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

MEF(base): Baseline Modified Energy Factor 1.26
MEF(act): Modified Energy Factor of new clothes washer (from application … range = 2.3 to 4.00)
VCF: Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS: 394 annual washing loads (calculated from Assessment)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations: $150 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 5.80 yrs
Payback Post-Incentive: 4.28 yrs
Incentive/Cost Ratio: 26%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service from MidAmerican and who use electricity for water heating and clothes drying.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

<u>Reasons for Revisions (01/01/2014):</u>

Description: Clarification of measure description
MEF(act): Clarification of factor range
VCF: Acronym change from CAP to VCF
Cost Allocation: Added measure cost allocation

Residential Equipment
Clothes Washer – Gas Dry

Description: ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline: Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ(gas) x CONV}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

MEF(base): Baseline Modified Energy Factor 1.26
MEF(act): Modified Energy Factor of new clothes washer (from application … range = 2.0 to 4.00)
VCF: Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS: 394 annual washing loads (calculated from Assessment)
ADJ(gas): 0.322 relative level of gas savings for units of this type based on ENERGY STAR data
CONV: 0.0364 gas conversion factor
LF(gas): 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations: $150 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.26 yrs
Payback Post-Incentive: 6.11 yrs
Incentive/Cost Ratio: 26%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas service from MidAmerican and who use natural gas for water heating.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

New Measure

Residential Equipment
Clothes Washer – Gas Water Heat

Description:	ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline:	Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life:	11 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ(gas) x CONV}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

MEF(base):	Baseline Modified Energy Factor 1.26
MEF(act):	Modified Energy Factor of new clothes washer (from application … range = 2.0 to 4.00)
VCF:	Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS:	394 annual washing loads (calculated from Assessment)
ADJ(gas):	0.678 relative level of gas savings for units of this type based on ENERGY STAR data
CONV:	0.0364 gas conversion factor
LF(gas):	1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations:	$150 per unit
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	8.26 yrs
Payback Post-Incentive:	6.11 yrs
Incentive/Cost Ratio:	26%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas service from MidAmerican and who use natural gas for water heating.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
Savings Algorithm: Removed electric calculations and factors
MEF(act): Clarification of factor range
VCF: Acronym change from CAP to VCF
Cost Allocation: Added measure cost allocation

Residential Equipment
Clothes Washer – Gas Water Heat + Gas Dry

Description:	ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline:	Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life:	11 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x CONV}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

MEF(base):	Baseline Modified Energy Factor 1.26
MEF(act):	Modified Energy Factor of new clothes washer (from application … range = 2.0 to 4.00)
CAP:	Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS:	394 annual washing loads (calculated from Assessment)
CONV:	0.0364 gas conversion factor
LF(gas):	1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations:	$150 per unit
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	7.63 yrs
Payback Post-Incentive:	5.54 yrs
Incentive/Cost Ratio:	27%

Cost Allocation:

Electric:	60%
Gas:	40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas service from MidAmerican and who use natural gas for water heating and clothes drying.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
Savings Algorithm: Clarification of savings calculations
MEF(act): Clarification of factor range
VCF: Acronym change from CAP to VCF
Cost Allocation: Added measure cost allocation

Residential Equipment
Clothes Washer – Gas Water Heat + Electric Dry

Description: ENERGY STAR labeled High Efficiency Clothes Washer with MEF >= 2.0 and Water Factor < 6.0
Baseline: Standard Clothes Washer with MEF 1.26 and Water Factor 9.0 (federal standard)
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ(elec)}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{MEF(base)}} - \frac{1}{\text{MEF(act)}}\right) \text{ x CAP x LOADS x ADJ(gas) x CONV}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

MEF(base): Baseline Modified Energy Factor 1.26
MEF(act): Modified Energy Factor of new clothes washer (from application … range = 2.0 to 4.00)
VCF: Cubic foot volume of clothes washer (from application … range = 1.00 to 5.00)
LOADS: 394 annual washing loads (calculated from Assessment)
ADJ(elec): 0.433 relative level of electric savings for units of this type based on ENERGY STAR data
ADJ(gas): 0.678 relative level of gas savings for units of this type based on ENERGY STAR data
CONV: 0.0364 gas conversion factor
LF(elec): 0.9561 load factor (based on Residential Base – Baseload load shape)
LF(gas): 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$457.83 \text{ x } (\text{MEF(act)} - \text{MEF(base)})$$

Incentives:

All Installations: $150 per unit
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 6.80 yrs
Payback Post-Incentive: 4.99 yrs
Incentive/Cost Ratio: 27%

Cost Allocation:

Electric: 60%
Gas: 40%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking service from MidAmerican and who use natural gas for water heating and electricity for clothes drying.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Qualifying equipment is available by importing an ENERGY STAR file.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
MEF(act): Clarification of factor range
VCF: Acronym change from CAP to VCF
Cost Allocation: Added measure cost allocation

Residential Equipment
Heat Pump Water Heater

Description: ENERGY STAR Heat Pump Water Heater with EF >= 2.0
Baseline: Standard Efficiency Electric Water Heater with EF = 0.92
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 34.899 \text{ x } (\text{EF(act)} - \text{EF(base)}) \text{ x GAL}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

EF(act): Energy Factor of new heat pump water heater (from application … range = 2.0 to 4.0)
EF(base): Baseline Energy Factor 0.92
GAL: Capacity of heat pump water heater in gallons (from application … range = 50 to 100)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$23.73 \text{ x } (\text{MEF(act)} - \text{MEF(base)}) \text{ x GAL}$$

Incentives:

EF 2.00 – 2.29:	$500
EF 2.30 and above:	$1,500
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	11.12 yrs
Payback Post-Incentive:	2.64 yrs
Incentive/Cost Ratio:	76%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Available to Electric only customers.

Reasons for Revisions (01/01/2014):

Comment: Clarification of eligibility

Residential Assessment
Single Family Assessment

Description: Single Family Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Assessments are available to all customers in single family homes where the homes are at least ten years old.

Assessments are limited to one per customer during the plan period.

Residential Assessment
Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 46.60$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.40 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

Residential Assessment
Faucet Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.16$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.47 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

  Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

Residential Assessment
Kitchen Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

Annual kWh = 46.60

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.44 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

Residential Assessment
Kitchen Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.16$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.52 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

Residential Assessment
Low Flow Showerhead – Electric

Description: Low Flow Showerhead (1.5 gpm) - Electric
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 222.13$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.14 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

  Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Residential Assessment
Low Flow Showerhead – Gas

Description: Low Flow Showerhead (1.5 gpm) - Gas
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

Annual Therms = 10.30

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.16 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Residential Assessment
Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 11.52 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.99 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Residential Assessment
Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

Annual Themrs = 0.52 x FT

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.52 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

Residential Assessment
Water Heater Blanket – Electric

Description: Water Heater Blanket – Electric
Baseline: No Water Heater Insulation Blanket
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 227.93$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	1.45 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

Residential Assessment
Water Heater Blanket – Gas

Description: Water Heater Blanket – Gas
Baseline: No Water Heater Insulation Blanket
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 11.95$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	3.13 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

Residential Assessment
CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.25 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.29 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Assessment
CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 6 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	3.49 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.35 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Assessment
LED Interior Standard Lighting

Description: LED Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 12 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	7

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	9.05 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.61 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Assessment
Programmable Thermostat – Electric Heat Only

Description:	Programmable Thermostat – Electric Heat
Baseline:	Standard Thermostat – Electric Heat
Useful Life:	15 Years *

Savings Algorithm *:

Annual kWh = 489.79

Peak kW = 0

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking gas and electric service from MidAmerican who use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Programmable Thermostat – Electric Heat + Electric Cooling

Description: Programmable Thermostat – Electric Heat + Electric Cooling
Baseline: Standard Thermostat – Electric Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 489.00$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

LF: 0.0712 load factor (based on Residential Electric Heating + Cooling load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking gas and electric service from MidAmerican who use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Programmable Thermostat – Gas Heat

Description: Programmable Thermostat – Gas Heat
Baseline: Standard Thermostat – Gas Heat
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 21.12$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	7.22 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking gas service only from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Programmable Thermostat – Gas Heat + Electric Cooling

Description: Programmable Thermostat – Gas Heat + Electric Cooling
Baseline: Standard Thermostat – Gas Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 80.14$$

$$\text{Annual Therms} = 21.12$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	4.76 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment to customers taking gas and electric service from MidAmerican who use gas for heating and electricity for cooling.

Residential Assessment
Attic Insulation – Electric Heating

Description:	Attic Insulation with Enhanced R-Value – Electric Heating
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0065503 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	5.93 yrs
Payback Post-Incentive:	1.87 yrs
Incentive/Cost Ratio:	68%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

1.5 story homes may only be able to meet R-24 in ceiling.

Low pitched roofs may only be able to meet R-38. In ceiling.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Attic Insulation – Electric Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0029941 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	15.48 yrs
Payback Post-Incentive:	4.82 yrs
Incentive/Cost Ratio:	69%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

1.5 story homes may only be able to meet R-24 in ceiling.

Low pitched roofs may only be able to meet R-38. In ceiling.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Attic Insulation – Gas Heat

Description:	Attic Insulation with Enhanced R-Value – Gas Heat
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas):	0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	9.09 yrs
Payback Post-Incentive:	2.65 yrs
Incentive/Cost Ratio:	71%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service only from MidAmerican.

1.5 story homes may only be able to meet R-24 in ceiling.

Low pitched roofs may only be able to meet R-38. In ceiling.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Attic Insulation – Gas Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0023011 kWh savings per CDD per square foot (calculated from Assessment)
K(gas):	0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	9.20 yrs
Payback Post-Incentive:	2.60 yrs
Incentive/Cost Ratio:	72%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

1.5 story homes may only be able to meet R-24 in ceiling.

Low pitched roofs may only be able to meet R-38 in ceiling.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Wall Insulation – Electric Heat

Description:	Wall Insulation with Enhanced R-Value – Electric Heat
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base):	R-Value of existing insulation (from application … Must be 0)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	3.63 assumed R-Value of existing structural components
DD:	6,362 normal heating degree days for Iowa (system-wide average)
K(elec):	0.0043706 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 80 to 6,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.
Pay up to the recommended amount during audit

Recommendation will be to fill the wall cavity, resulting in higher R-value for some wall configurations.

R-10 is acceptable for brick siding.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment

Wall Insulation – Electric Heat + Electric Cooling

Description:	Wall Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … Must be 0)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	3.63 assumed R-Value of existing structural components
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0019978 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec):	0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	11.18 yrs
Payback Post-Incentive:	4.86 yrs
Incentive/Cost Ratio:	57%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Pay up to the recommended amount during audit

Recommendation will be to fill the wall cavity, resulting in higher R-value for some wall configurations.

R-10 is acceptable for brick siding.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Wall Insulation – Gas Heat

Description: Wall Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … Must be 0)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 3.63 assumed R-Value of existing structural components
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 50 to 6,000)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 75% of total cost
Incentive Cap: $1,000
Financing: none

Simple Payback:

Payback Pre-Incentive: 9.39 yrs
Payback Post-Incentive: 4.39 yrs
Incentive/Cost Ratio: 53%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service only from MidAmerican.

Pay up to the recommended amount during audit

Recommendation will be to fill the wall cavity, resulting in higher R-value for some wall configurations.

R-10 is acceptable for brick siding.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Wall Insulation – Gas Heat + Electric Cooling

Description: Wall Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … Must be 0)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 3.63 assumed R-Value of existing structural components
CDD: 1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec): 0.0015354 kWh savings per CDD per square foot (calculated from Assessment)
K(gas): 0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 75% of total cost
Incentive Cap: $1,000
Financing: none

Simple Payback:

Payback Pre-Incentive:	9.16 yrs
Payback Post-Incentive:	3.88 yrs
Incentive/Cost Ratio:	58%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Pay up to the recommended amount during audit

Recommendation will be to fill the wall cavity, resulting in higher R-value for some wall configurations.

R-10 is acceptable for brick siding.

Reasons for Revisions (01/01/2014):

RVAL(base): Clarification of RVAL(base) range
Comments: Clarification of eligibility

Residential Assessment
Rim/Band/Joist Insulation – Electric Heat

Description: R/B/J Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline: No R/B/J Insulation
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{\text{RVAL(new)}}{10}\right) \text{ x DD x K(elec)x LIN}$$

Peak kW = 0

RVAL(new): R-Value of new insulation (from application … range = 15 to 30)
DD: 6,362 normal heating degree days for Iowa (system-wide average)
K(elec): 0.0003988 kWh savings per HDD per linear foot (calculated from Assessment – R-10 assumed)
LIN: Total linear feet of new insulation (from application … range = 5 to 500)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: $0.70 x LIN
Incentive Cap: 75% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: ---- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Rim/Band/Joist Insulation – Electric Heat + Electric Cooling

Description:	R/B/J Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	No R/B/J Insulation
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{\text{RVAL(new)}}{10}\right) \text{ x DD x K(elec)x LIN}$$

$$\text{Peak kWh} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(new):	R-Value of new insulation (from application … range = 15 to 30)
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0001823 kWh savings per DD per linear foot (calculated from Assessment – R-10 assumed)
LIN:	Total linear feet of new insulation (from application … range = 5 to 500)
LF(elec):	0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$0.70 x LIN
Incentive Cap:	75% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	9.49 yrs
Payback Post-Incentive:	4.75 yrs
Incentive/Cost Ratio:	50%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Residential Assessment
Rim/Band/Joist Insulation – Gas Heat

Description:	R/B/J Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	No R/B/J Insulation
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{\text{RVAL(new)}}{10}\right) \text{ x HDD x K(gas)x LIN}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(new):	R-Value of new insulation (from application … range = 15 to 30)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas):	0.0000170 therm savings per HDD per linear foot (calculated from Assessment – R-10 assumed)
LIN:	Total linear feet of new insulation (from application … range = 5 to 500)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$0.70 x LIN
Incentive Cap:	75% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	6.37 yrs
Payback Post-Incentive:	2.34 yrs
Incentive/Cost Ratio:	63%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Residential Assessment
Rim/Band/Joist Insulation – Gas Heat + Electric Cooling

Description:	R/B/J Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	No R/B/J Insulation
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{\text{RVAL(new)}}{10}\right) \text{ x CDD x K(elec)x LIN}$$

$$\text{Annual Therms} = \left(\frac{\text{RVAL(new)}}{10}\right) \text{ x HDD x K(gas)x LIN}$$

$$\text{Peak kWh} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(new):	R-Value of new insulation (from application … range = 15 to 30)
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0000140 kWh savings per HDD per linear foot (calculated from Assessment – R-10 assumed)
K(gas):	0.0000170 therm savings per HDD per linear foot (calculated from Assessment – R-10 assumed)
LIN:	Total linear feet of new insulation (from application … range = 5 to 500)
LF(elec):	0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	\$0.70 x LIN
Incentive Cap:	75% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	6.39 yrs
Payback Post-Incentive:	2.75 yrs
Incentive/Cost Ratio:	57%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Residential Assessment
Foundation Insulation – Electric Heat

Description:	Foundation Insulation with Enhanced R-Value – Electric Heating
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 10)-
RVAL(new):	R-Value of new insulation (from application … range = 11 to 30)
EXIST:	4.29 assumed R-Value of existing structural components
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0017738 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 80 to 6,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	85% of total cost
Incentive Cap:	$1,000
Financing:	none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Foundation Insulation – Electric Heat + Electric Cooling

Description: Foundation Insulation with Enhanced R-Value – Electric Heating + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kWh} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 10)-
RVAL(new): R-Value of new insulation (from application … range = 11 to 30)
EXIST: 4.29 assumed R-Value of existing structural components
DD: 7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec): 0.0006812 kWh savings per DD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 85% of total cost
Incentive Cap: $1,000
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Foundation Insulation – Gas Heat

Description: Foundation Insulation with Enhanced R-Value – Gas Heating
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 10)-
RVAL(new): R-Value of new insulation (from application … range = 11 to 30)
EXIST: 4.29 assumed R-Value of existing structural components
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0000757 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 85% of total cost
Incentive Cap: $1,000
Financing: none

Simple Payback:

Payback Pre-Incentive: 21.32 yrs
Payback Post-Incentive: 4.56 yrs
Incentive/Cost Ratio: 79%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Comments: Clarification of eligibility

Residential Assessment
Foundation Insulation – Gas Heat + Electric Cooling

Description: Foundation Insulation with Enhanced R-Value – Gas Heating + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kWh} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{8365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 10)-
RVAL(new): R-Value of new insulation (from application … range = 11 to 30)
EXIST: 4.29 assumed R-Value of existing structural components
CDD: 1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec): 0.0005235 kWh savings per CDD per square foot (calculated from Assessment)
K(gas): 0.0000757 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 85% of total cost
Incentive Cap: $1,000
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

  In the event that more insulation is installed than recommended, the rebate will not be pro-rated and the rebate cap will remain the same as originally recommended.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Duct Insulation – Electric Heat

Description:	Duct Insulation (R-8) – Electric Heat
Baseline:	No Duct Insulation
Useful Life:	20 Years *

Savings Algorithm *:

Annual kWh = 594.75

Peak kW = 0

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$750
Financing:	none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Duct Insulation – Electric Heat + Electric Cooling

Description: Duct Insulation (R-8) – Electric Heat + Electric Cooling
Baseline: No Duct Insulation
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 569.20$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

LF(elec): 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 75% of total cost
Incentive Cap: $750
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Duct Insulation – Gas Heat

Description: Duct Insulation (R-8) – Gas Heat
Baseline: No Duct Insulation
Useful Life: 20 Years *

Savings Algorithm *:

Annual Therms = 25.64

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: 75% of total cost
Incentive Cap: $750
Financing: none

Simple Payback:

Payback Pre-Incentive: 17.28 yrs
Payback Post-Incentive: 4.32 yrs
Incentive/Cost Ratio: 75%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

Residential Assessment
Duct Insulation – Gas Heat + Electric Cooling

Description:	Duct Insulation (R-8) – Gas Heat + Electric Cooling
Baseline:	No Duct Insulation
Useful Life:	20 Years *

Savings Algorithm *:

Annual kWh = 72.12

Annual Therms = 25.64

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	75% of total cost
Incentive Cap:	$750
Financing:	none

Simple Payback:

Payback Pre-Incentive:	12.33 yrs
Payback Post-Incentive:	3.91 yrs
Incentive/Cost Ratio:	68%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Residential Assessment
Insulated Vinyl Siding – Electric Heat

Description:	Vinyl Siding with Foam Backing Laminated to the Panel (R-3) – Electric Heat
Baseline:	No Siding Insulation
Useful Life:	20 Years *

Savings Algorithm *:

Annual kwh = 2.2097 x SQFT

Peak kWh = 0

SQFT: Total square feet of new insulation (from application)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap:	not applicable
Financing:	yes

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Insulated Vinyl Siding – Electric Heat + Electric Cooling

Description: Vinyl Siding with Foam Backing Laminated to the Panel (R-3) – Electric Heat + Electric Cooling
Baseline: No Siding Insulation
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 1.1704 \text{ x SQFT}$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

SQFT: Total square feet of new insulation (from application)
LF(elec): 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: not applicable
Financing: yes

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Insulated Vinyl Siding – Gas Heat

Description:	Vinyl Siding with Foam Backing Laminated to the Panel (R-3) – Gas Heat
Baseline:	No Siding Insulation
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 0.0942 \text{ x SQFT}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

SQFT:	Total square feet of new insulation (from application)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap:	not applicable
Financing:	yes

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Insulated Vinyl Siding – Gas Heat + Electric Cooling

Description: Vinyl Siding with Foam Backing Laminated to the Panel (R-3) – Gas Heat + Electric Cooling
Baseline: No Siding Insulation
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 0.1232 \text{ x SQFT}$$

$$\text{Annual Therms} = 0.0942 \text{ x SQFT}$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

SQFT: Total square feet of new insulation (from application)
LF(elec): 0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: Not applicable
Financing: yes

Simple Payback:

Payback Pre-Incentive:	6.77 yrs
Payback Post-Incentive:	1.09 yrs
Incentive/Cost Ratio:	84%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Measure name: Clarification of measure
Description: Clarification of measure
Incentives: Clarification of available incentives

Residential Assessment
Infiltration Reduction – Electric Heat

Description: Infiltration Reduction 4.0 ACH50 – Gas Heat + Electric Cooling
Baseline: Existing Infiltration Reduction (10 ACH50)
Useful Life: 11 Years *

Savings Algorithm *:

Annual kwh = 1.2326 x SQFT

Peak kW = 0

SQFT: Total square feet of infiltration reduction (from application)

Incremental Cost Algorithm:

Total cost of infiltration reduction

Incentives:

All Installations: 70% of cost
Incentive Cap: $200
Financing: no

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Infiltration Reduction – Electric Heat + Electric Cooling

Description: Infiltration Reduction 4.0 ACH50 – Gas Heat + Electric Cooling
Baseline: Existing Infiltration Reduction (10 ACH50)
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 1.2306 \text{ x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

SQFT: Total square feet of infiltration reduction (from application)
LF(elec): 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of infiltration reduction

Incentives:

All Installations: 70% of cost
Incentive Cap: $200
Financing: no

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: ---- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Infiltration Reduction – Gas Heat + Electric Cooling

Description:	Infiltration Reduction 4.0 ACH50 – Gas Heat + Electric Cooling
Baseline:	Existing Infiltration Reduction (10 ACH50)
Useful Life:	11 Years *

Savings Algorithm *:

Annual kwh = 0.2017 x SQFT

Annual Therms = 0.0531 x SQFT

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

SQFT:	Total square feet of infiltration reduction (from application)
LF(elec):	0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

70% of the total cost of infiltration reduction

Incentives:

All Installations:	70% of cost
Incentive Cap:	$200
Financing:	no

Simple Payback:

Payback Pre-Incentive:	8.08 yrs
Payback Post-Incentive:	1.70 yrs
Incentive/Cost Ratio:	79%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incremental Cost Algorithm: Clarification of calculation
Incentives: Clarification of incentive structure

Residential Assessment
Windows – Electric Heat

Description:	Energy Star Rated Window – Electric Heat
Baseline:	Standard Efficiency Window
Useful Life:	20 Years *

Savings Algorithm *:

Annual kWh = K(elec) x (BASE – UF) x SQFT

Peak kW = 0

K(elec):	45.2708 kWh savings per square foot (calculated from Assessment)
BASE:	baseline efficiency UF = 0.53
UF:	efficiency rating of new window (from rebate application … range = 0.10 to 0.35)
SQFT:	Total square feet of window (from application … 15 if not supplied)

Incremental Cost Algorithm:

Total cost of window

Incentives:

All Installations:	Measure is only eligible for EnergyAdvantage
Incentive Cap:	N/A
Financing:	yes

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Windows – Electric Heat + Electric Cooling

Description:	ENERGY STAR Rated Window – Electric Heat + Electric Cooling
Baseline:	Standard Efficiency Window
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \text{K(elec) x (BASE} - \text{UF) x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

K(elec):	23.9781 kWh savings per square foot (calculated from Assessment)
BASE:	baseline efficiency UF = 0.53
UF:	efficiency rating of new window (from rebate application … range = 0.10 to 0.35)
SQFT:	Total square feet of window (from application … 15 if not supplied)
LF(elec):	0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of window

Incentives:

All Installations:	Measure is only eligible for EnergyAdvantage Financing
Incentive Cap:	N/A
Financing:	yes

Simple Payback:

Payback Pre-Incentive:	104.43 yrs
Payback Post-Incentive:	98.17 yrs
Incentive/Cost Ratio:	6%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Assessment
Windows – Gas Heat

Description:	ENERGY STAR Rated Window – Gas Heat
Baseline:	Standard Efficiency Window
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \text{K(gas)} \text{ x } (\text{BASE} - \text{UF}) \text{ x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

K(gas):	1.9803 therm savings per square foot (calculated from Assessment)
BASE:	baseline efficiency UF = 0.53
UF:	efficiency rating of new window (from rebate application … range = 0.10 to 0.35)
SQFT:	Total square feet of window (from application … 15 if not supplied)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of window

Incentives:

All Installations:	Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap:	N/A
Financing:	yes

Simple Payback:

Payback Pre-Incentive:	84.37 yrs
Payback Post-Incentive:	79.50 yrs
Incentive/Cost Ratio:	6%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking gas service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Assessment
Windows – Gas Heat + Electric Cooling

Description: ENERGY STAR Rated Window – Gas Heat + Electric Cooling
Baseline: Standard Efficiency Window
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \text{K(elec) x (BASE} - \text{UF) x SQFT}$$

$$\text{Annual Therms} = \text{K(gas) x (BASE} - \text{UF) x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

K(elec): 2.5248 kWh savings per square foot (calculated from Assessment)
K(gas): 1.9803 therm savings per square foot (calculated from Assessment)
BASE: baseline efficiency UF = 0.53
UF: efficiency rating of new window (from rebate application … range = 0.10 to 0.35)
SQFT: Total square feet of window (from application … 15 if not supplied)
LF(elec): 0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of window

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive:	75.82 yrs
Payback Post-Incentive:	66.04 yrs
Incentive/Cost Ratio:	13%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is available as a follow up measure to a single family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Assessment
Doors – Gas Heat + Electric Cooling

Description: Energy Star Rated Door (R-4.8)
Baseline: Standard Efficiency Door (R-2.4)
Useful Life: 20 Years *

Savings Algorithm *:

Annual kWh = 0.3446 x SQFT

Annual Therms = 0.2635 x SQFT

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

SQFT: size of door in square feet (from rebate application … 40 if not supplied)
LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of door

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive: 45.13 yrs
Payback Post-Incentive: 35.71 yrs
Incentive/Cost Ratio: 21%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Doors – Electric Heat

Description: Energy Star Rated Door (R-4.8)
Baseline: Standard Efficiency Door (R-2.4)
Useful Life: 20 Years *

Savings Algorithm *:

Annual kWh = 6.1792 x SQFT

Peak kW = 0

SQFT: size of door in square feet (from rebate application … 40 if not supplied)

Incremental Cost Algorithm:

Total cost of door

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Doors – Gas Heat

Description: Energy Star Rated Door (R-4.8)
Baseline: Standard Efficiency Door (R-2.4)
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 0.2635 \text{ x SQFT}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

SQFT: size of door in square feet (from rebate application … 40 if not supplied)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of door

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Doors – Electric Heat + Electric Cooling

Description: Energy Star Rated Door (R-4.8)
Baseline: Standard Efficiency Door (R-2.4)
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 3.2729 \text{ x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

SQFT: size of door in square feet (from rebate application … 40 if not supplied)
LF(elec): 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of door

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

New measure

Residential Assessment
Doors – Gas Heat + Electric Cooling

Description: ENERGY STAR Rated Door (R-4.8) – Gas Heat + Electric Cooling
Baseline: Standard Efficiency Door (R-2.4)
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 0.3446 \text{ x SQFT}$$

$$\text{Annual Therms} = 0.2635 \text{ x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

SQFT: size of door in square feet (from rebate application … 40 if not supplied)
LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of door

Incentives:

All Installations: Measure is only eligible for EnergyAdvantage Financing.
Incentive Cap: N/A
Financing: yes

Simple Payback:

Payback Pre-Incentive:	45.13 yrs
Payback Post-Incentive:	35.71 yrs
Incentive/Cost Ratio:	21%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure
Incentives: Clarification of incentive structure

Residential Assessment
Smart Power Strip

Description: Smart Power Strip
Baseline: Standard Power Strip
Useful Life: 5 Years *

Savings Algorithm *:

Annual kWh = 100.00

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	4.54 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Residential Assessment
Bonus Incentives

HVAC Coupon

A coupon for $20 will be provided to all residential assessment recipients toward the purchase of a tune up installation in the Residential HVAC Tune Up program.

Bonus Payments

A bonus payment of $200 will be paid to all residential assessment recipients that install three follow-up measures recommended in the assessment within twelve months of the date of the assessment.

Neighborhood Outreach Incentive

An incentive of $50 per residential assessment will be paid to neighborhood associations that sign up residents for the Residential Assessment program through a qualifying neighborhood outreach program.

Residential New Construction
Advanced Builder Option Package – Electric Heat + Electric Cooling

Description: Advanced Builder Option Package – Electric Heat + Electric Cooling
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $0.60 x Annual kWh

Incentives:

All Installations: $2,600 conventional equipment
$1,000 ground source heat-pumps (customers would be eligible for ground source heat pump rebate from Residential Equipment program)

Simple Payback:

Payback Pre-Incentive:	11.20 yrs
Payback Post-Incentive:	6.61 yrs
Incentive/Cost Ratio:	41%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking electric service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Incentives: Clarification of incentive structure

Residential New Construction
Advanced Builder Option Package – Gas Heat

Description: Advanced Builder Option Package – Gas Heat
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

Annual Therms = varies

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.9561 load factor (based on Residential Base - Baseload load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = ($1.04 x Annual kWh) + ($14.33 x Annual Therms)

Incentives:

All Installations: $1,900

Simple Payback:

Payback Pre-Incentive:	17.83 yrs
Payback Post-Incentive:	10.47 yrs
Incentive/Cost Ratio:	41%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking gas service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Incentives: Clarification of incentive structure

Residential New Construction
Advanced Builder Option Package – Gas Heat + Electric Cooling

Description: Advanced Builder Option Package – Gas Heat + Electric Cooling
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

Annual Therms = varies

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.1348 load factor (based on Residential Base - Cooling + Heating load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = ($1.94 x Annual kWh) + ($6.82 x Annual Therms)

Incentives:

All Installations: $2,600

Simple Payback:

Payback Pre-Incentive:	15.81 yrs
Payback Post-Incentive:	9.72 yrs
Incentive/Cost Ratio:	39%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking gas and electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Incentive: Clarification of incentive structure

Residential New Construction
Advanced Builder Option Package – Ground Source Heat Pump

Description: Advanced Builder Option Package – Ground Source Heat Pump
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $0.60 x Annual kWh

Incentives:

All Installations: $1,000 + eligible rebates for Ground Source Heat Pumps in Residential Equipment

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

New Measure

Residential New Construction
Home Energy Rating System – Electric Heat + Electric Cooling

Description: Home Energy Rating System – Electric Heat + Electric Cooling
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $0.60 x Annual kWh

Incentives:

All Installations: $2,600 conventional equipment
$1,000 ground source heat-pumps (customers would be eligible for ground source heat pump rebate from Residential Equipment program.

Simple Payback:

Payback Pre-Incentive:	11.20 yrs
Payback Post-Incentive:	4.71 yrs
Incentive/Cost Ratio:	58%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking electric service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Meets ENERGY STAR specifications.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Incentive: Clarification of incentive structure

Residential New Construction
Home Energy Rating System – Gas Heat

Description: Home Energy Rating System – Gas Heat
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

Annual Therms = varies

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.9561 load factor (based on Residential Base - Baseload load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = ($1.04 x Annual kWh) + ($14.33 x Annual Therms)

Incentives:

All Installations: $1,900

Simple Payback:

Payback Pre-Incentive:	17.83 yrs
Payback Post-Incentive:	7.52 yrs
Incentive/Cost Ratio:	58%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking gas service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Meets ENERGY STAR specifications.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Incentive: Clarification of incentive amount

Residential New Construction
Home Energy Rating System – Gas Heat + Electric Cooling

Description:	Home Energy Rating System – Gas Heat + Electric Cooling
Baseline:	Standard Code Construction
Useful Life:	30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

Annual Therms = varies

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.1348 load factor (based on Residential Base - Cooling + Heating load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = ($1.94 x Annual kWh) + ($6.82 x Annual Therms)

Incentives:

All Installations: $2,600

Simple Payback:

Payback Pre-Incentive:	15.81 yrs
Payback Post-Incentive:	7.20 yrs
Incentive/Cost Ratio:	54%

Cost Allocation

Electric:	75%
Gas:	25%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

Incremental costs for this bundled measure are calculated based on the incremental costs of qualifying individual measures from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the relative split of electric and gas system benefits contained in the Residential New Construction planning model.

This measure is available to customers taking gas and electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Meets ENERGY STAR specifications.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Cost Allocation: Added measure cost allocation
Incentive: Clarification of incentive structure

Residential New Construction
Home Energy Rating System – Ground Source Heat Pump

Description: Home Energy Rating System – Ground Source Heat Pump
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $0.60 x Annual kWh

Incentives:

All Installations: $1,000 + eligible rebates for Ground Source Heat Pumps in Residential Equipment

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life is calculated based on the maximum useful life of qualifying individual measures for this bundled measure from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

Reasons for Revisions (01/01/2014):

New Measure

Residential New Construction
Multifamily – Gas Heat + Electric Cooling

Description:	Multifamily Home Energy Rating System – Gas Heat + Electric Cooling
Baseline:	Standard Code Construction
Useful Life:	30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

Annual Therms = varies

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.1348 load factor (based on Residential Base - Cooling + Heating load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $1.75 per square foot

Incentives:

All Installations: $1.00 per square foot

Simple Payback:

Payback Pre-Incentive:	12.56 yrs
Payback Post-Incentive:	5.38 yrs
Incentive/Cost Ratio:	57%

Cost Allocation

Electric:	75%
Gas:	25%

Comments:

* Useful life and incremental cost algorithms are based on program manager recommendations.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

This measure is available to customers taking gas and electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

All participating homes under this measure must be ENERGY STAR rates, residential metered, and three stories or less.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of measure requirements
Cost Allocation: Added measure cost allocation
Incentives: Clarification of incentive structure

Residential New Construction
Multifamily – Gas Heat

Description: Multifamily Home Energy Rating System – Gas Heat
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual Therms = varies (provided by HERS report)

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $1.75 per square foot

Incentives:

All Installations: $0.60 per square foot

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and incremental cost algorithms are based on program manager recommendations.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

This measure is available to customers taking gas service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

All participating homes under this measure must be Energy Star rates, residential metered, and three stories or less.

Reasons for Revisions (01/01/2014):

New measure

Residential New Construction
Multifamily – Electric Cooling Only

Description: Multifamily Home Energy Rating System – Electric Cooling
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

LF(elec): 0.0859 load factor (based on Residential Base - Cooling load shape)

Incremental Cost Algorithm *:

Incremental Cost = $1.75 per square foot

Incentives:

All Installations: $0.40 per square foot

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and incremental cost algorithms are based on program manager recommendations.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

This measure is available to customers taking electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

All participating homes under this measure must be Energy Star rates, residential metered, and three stories or less.

Reasons for Revisions (01/01/2014):

New measure

Residential New Construction
Multifamily – Electric Heat + Electric Cooling

Description: Multifamily Home Energy Rating System – Electric Heat + Electric Cooling
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

LF(elec): 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $1.75 per square foot

Incentives:

All Installations: $1.00 per square foot

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and incremental cost algorithms are based on program manager recommendations.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

This measure is available to customers taking electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

All participating homes under this measure must be Energy Star rates, residential metered, and three stories or less.

Reasons for Revisions (01/01/2014):

New measure

Residential New Construction
Multifamily – Ground Source Heat Pump

Description: Multifamily Home Energy Rating System – Ground Source Heat Pump
Baseline: Standard Code Construction
Useful Life: 30 Years *

Savings Algorithm:

Annual kWh = varies (provided by HERS report)

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

LF(elec): 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $1.75 per square foot

Incentives:

All Installations: $0.30 per square foot plus Ground Source Heat Pump incentive from Residential Equipment

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Useful life and incremental cost algorithms are based on program manager recommendations.

A schedule for degradation of savings for this bundled measure is included in the Residential New Construction planning model based on the various lives of qualifying individual measures.

This measure is available to customers taking electric service from MidAmerican.

Non-energy benefits of $0.00688/gallon of annual water savings are assumed for cost-effectiveness purposes, which is the average incremental water and sewer rate for Des Moines.

All participating homes under this measure must be Energy Star rates, residential metered, and three stories or less.

Reasons for Revisions (01/01/2014):

New measure

Residential Behavioral
Home Energy Reports

Description: Home Energy Reports – Gas Heat + Electric Cooling
Baseline: No Home Energy Reports – Gas Heat + Electric Cooling
Useful Life: 1 Year

Savings Algorithm:

Annual kWh = Savings are determined by the program contractor in aggregate

Annual Therms = Savings are determined by the program contractor in aggregate

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.3466 load factor (based on Residential Base – Whole House load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of providing home energy reports

Incentives:

Incentives are set at 100% of incremental cost

Simple Payback:

Payback Pre-Incentive:	0.38 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* This measure is available to customers on an invitation only basis.

Residential Load Management
Curtailment Event

Description: Residential Load Curtailment
Baseline: Normal Residential Load
Useful Life: 1 Year

Savings Algorithm:

kWh and Peak kW savings per curtailment event will be determined through MidAmerican's statistical model of normal residential loads on typical peak day afternoons. Estimation of curtailment savings will include consideration of average temperatures from 2 p.m. through 7 p.m. of the curtailment day.

Incremental Cost Algorithm:

N/A

Incentives:

$40 per summer for first year participants
$30 per summer for all other participants

Simple Payback:

N/A

Comments:

Residential HVAC Tune Up
Central Air Conditioner – Tune Up

Description: Central Air Conditioner Maintenance Tune Up
Baseline: Unmaintained Central Air Conditioner
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kWh} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

SAVE Test in: Equipment SAVE Score before improvements (from SAVE attachment 0 to 110)
SAVE Test out: Equipment SAVE Score after improvements (from SAVE attachment 10 to 110)
Baseline Usage Number: 2,147 kWh
CAP: Capacity of new CAC in MBTu (from application … range = 8.0 to 65.0)
LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm *:

Total cost of tune up

Incentives:

Incentives: $180 per tune up achieving an improvement ≥ 10 SAVE points
Incentive Cap: 100% of cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 12.29 yrs
Payback Post-Incentive: 1.23 yrs
Incentive/Cost Ratio: 90%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive eligibility

Residential HVAC Tune Up
Air Source Heat Pump – Tune Up

Description: Air Source Heat Pump Maintenance Tune Up
Baseline: Unmaintained Air Source Heat Pump
Useful Life: 5 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

SAVE Test in: Equipment SAVE Score before improvements (from SAVE attachment 0 to 110)
SAVE Test out: Equipment SAVE Score after improvements (from SAVE attachment 10 to 110)
Baseline usage number: TBD kWh
CAP: capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of tune up

Incentives:

Incentives: $150 per tune up achieving an improvement ≥ 10 SAVE points
Incentive Cap: 100% of cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	4.05 yrs
Payback Post-Incentive:	1.01 yrs
Incentive/Cost Ratio:	75%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive structure

Residential HVAC Tune Up
Furnace – Tune Up

Description: Furnace Maintenance Tune Up
Baseline: Unmaintained Furnace
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kWh} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF}$$

SAVE Test in: Equipment SAVE Score before improvements (from SAVE attachment 0 to 110)
SAVE Test out: Equipment SAVE Score after improvements (from SAVE attachment 10 to 110)
Baseline usage number: 600 therms
CAP: Capacity of furnace in MBTu (from rebate application … range = 12.0 to 225.0)
LF: 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm *:

Total cost of tune up

Incentives:

Incentives: $180 per tune up achieving an improvement ≥ 10 SAVE points
Incentive Cap: 100% of cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 9.67 yrs
Payback Post-Incentive: 0.97 yrs
Incentive/Cost Ratio: 90%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive eligibility

Residential HVAC Tune Up
Duct Sealing – Electric Heat

TBD

Reasons for Revisions (01/01/2014):

New Measure

Residential HVAC Tune Up
Duct Sealing – Electric Heat + Electric Cooling

Description: 4 CFM per 100 Square Feet CFA – Electric Heat + Electric Cooling
Baseline: Existing CFM per 100 Square Feet CFA – Electric Heat + Electric Cooling
Useful Life: 18 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

$$\text{Peak kWh} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

SAVE Test in: Total Duct SAVE Score before improvements (from SAVE attachment 0 to 110)
SAVE Test out: Total Duct SAVE Score after improvements (from SAVE attachment 12 to 110)
Baseline usage number: TBD kWh

LF: 0.4653 load factor (based on Residential Heat - Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of duct sealing

Incentives:

All Tune Ups: $550 per tune up achieving an improvement >= 12 SAVE points
Incentive Cap: 75% of cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.97 yrs
Payback Post-Incentive: 3.83 yrs
Incentive/Cost Ratio: 57%

Comments:

* Baseline, useful life, and savings costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive eligibility

Residential HVAC Tune Up
Duct Sealing – Gas Heat

TBD

Reasons for Revisions (01/01/2014):

New Measure

Residential HVAC Tune Up
Duct Sealing – Gas Heat + Electric Cooling

Description: 4 CFM per 100 Square Feet CFA – Gas Heat + Electric Cooling
Baseline: Existing CFM per 100 Square Feet CFA – Gas Heat + Electric Cooling
Useful Life: 18 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

$$\text{Annual Therms} = \frac{\text{SAVE Test Out} - \text{SAVE Test In}}{\text{SAVE Test In}} \text{ x Baseline Usage Number}$$

SAVE Test in: Total Duct SAVE Score before improvements (from SAVE attachment 0 to 110)
SAVE Test out: Total Duct SAVE Score after improvements (from SAVE attachment 12 to 110)
Baseline usage number: TBD kWh

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.0859 load factor (based on Residential Base - Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of duct sealing

Incentives:

All Tune Ups: \$550 per tune up achieving an improvement $\geq$ 12 SAVE points
Incentive Cap: 75% of cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 10.15 yrs
Payback Post-Incentive: 4.34 yrs
Incentive/Cost Ratio: 57%

Comments:

* Baseline, useful life, and savings costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive structure

Nonresidential Equipment
Variable Speed Drive (VSD)

Description: Variable Speed Drive Controls
Baseline: Constant Speed Motor *
Useful Life: 15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{HP}}{\text{EFF(MOT)}}\right) \text{ x EFF(VSD) x CONV x LOADING x HOURS x SF}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

HP: horsepower of the motor being controlled by VSD (from application … range = 1 to 200)
EFF(MOT): efficiency rating of motor being controlled by VSD (from application … range = 0.500 to 0.980)
EFF(VSD): efficiency rating of the variable speed drive (from application … range = 0.800 to 0.980)
CONV: 0.746 horsepower to watts conversion rate
LOADING: 0.75 typical motor loading factor
HOURS: annual operating hours (from application … range = 3,000 to 8,760)
SF: 0.40 annual approximate savings factor for motors with an average loading rate of 0.75
LF: 0.9004 load factor (based on Small Industrial – Baseload load shape)

Incremental Cost Algorithm:

Full cost of the VSD.

Incentives:

All Units: $40 per HP
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.68 yrs
Payback Post-Incentive: 1.08 yrs
Incentive/Cost Ratio: 35%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Variable Speed Drive (VSD) – HVAC Applications

Description:	Variable Speed Drive Controls
Baseline:	Constant Speed Motor *
Useful Life:	15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{HP}}{\text{EFF(MOT)}}\right) \text{ x EFF(VSD)x CONV x LOADING x HOURS x SF}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

HP:	horsepower of the motor being controlled by VSD (from application … range = 1 to 200)
EFF(MOT):	efficiency rating of motor being controlled by VSD (from application … range = 0.500 to 0.980)
EFF(VSD):	efficiency rating of the variable speed drive (from application … range = 0.800 to 0.980)
CONV:	0.746 horsepower to watts conversion rate
LOADING:	0.75 typical motor loading factor
HOURS:	annual operating hours (from application … range = 3,000 to 8,760)
SF:	0.40 annual approximate savings factor for motors with an average loading rate of 0.75
LF:	5507.39 load factor (based on Small Industrial – Electric Inverse Cooling + Heating load shape)

Incremental Cost Algorithm:

Full cost of the VSD.

Incentives:

All Units:	$40 per HP
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.93 yrs
Payback Post-Incentive:	1.40 yrs
Incentive/Cost Ratio:	27%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Motors – EFC 1200

Description:	Enhanced Ultra-Premium Efficiency Motor – EFC 1200
Baseline:	NEMA Qualifying Standard Motor – EFC 1200 *
Useful Life:	15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EFF}}\right) \text{ x HP x CONV x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE:	base efficiency rating of the new motor (see Motor Efficiency Table below)
EFF:	efficiency rating of the new motor (from application … range = 0.800 to 0.990)
HP:	horsepower of the new motor (from application … range = 1 to 200)
CONV:	0.746 horsepower to watts conversion rate
HOURS:	annual operating hours (from application … range = 3,000 to 8,760)
LF:	0.9004 load factor (based on Small Industrial – Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$17.71 \text{ x HP}$$

Incentives:

All Units:	$12.50 per HP
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	12.09 yrs
Payback Post-Incentive:	3.56 yrs
Incentive/Cost Ratio:	71%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Incremental cost algorithms are calculated based on incremental costs from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the expected mix of motors offered under this measure.

Nonresidential Equipment
Motors – EFC 1800

Description: Enhanced Ultra-Premium Efficiency Motor – EFC 1800
Baseline: NEMA Qualifying Standard Motor – EFC 1800 *
Useful Life: 15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EFF}}\right) \text{x HP x CONV x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: base efficiency rating of the new motor (see Motor Efficiency Table below)
EFF: efficiency rating of the new motor (from application … range = 0.800 to 0.990)
HP: horsepower of the new motor (from application … range = 1 to 200)
CONV: 0.746 horsepower to watts conversion rate
HOURS: annual operating hours (from application … range = 3,000 to 8,760)
LF: 0.9004 load factor (based on Small Industrial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $23.64 x HP

Incentives:

All Units: $18.50 per HP
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 16.60 yrs
Payback Post-Incentive: 3.61 yrs
Incentive/Cost Ratio: 78%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost algorithms are calculated based on incremental costs from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the expected mix of motors offered under this measure.

Nonresidential Equipment
Motors – EFC 3600

Description: Enhanced Ultra-Premium Efficiency Motor – EFC 3600
Baseline: NEMA Qualifying Standard Motor – EFC 3600 *
Useful Life: 15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EFF}}\right) \text{ x HP x CONV x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: base efficiency rating of the new motor (see Motor Efficiency Table below)
EFF: efficiency rating of the new motor (from application … range = 0.800 to 0.990)
HP: horsepower of the new motor (from application … range = 1 to 200)
CONV: 0.746 horsepower to watts conversion rate
HOURS: annual operating hours (from application … range = 3,000 to 8,760)
LF: 0.9004 load factor (based on Small Industrial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $24.51 x HP

Incentives:

All Units: $18.50 per HP
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.26 yrs
Payback Post-Incentive: 2.03 yrs
Incentive/Cost Ratio: 75%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost algorithms are calculated based on incremental costs from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the expected mix of motors offered under this measure.

Nonresidential Equipment
Motors – ODP 1800

Description:	Enhanced Ultra-Premium Efficiency Motor – ODP 1800
Baseline:	NEMA Qualifying Standard Motor – ODP 1800 *
Useful Life:	15 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EFF}}\right) \text{ x HP x CONV x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE:	base efficiency rating of the new motor (see Motor Efficiency Table below)
EFF:	efficiency rating of the new motor (from application … range = 0.800 to 0.990)
HP:	horsepower of the new motor (from application … range = 1 to 200)
CONV:	0.746 horsepower to watts conversion rate
HOURS:	annual operating hours (from application … range = 3,000 to 8,760)
LF:	0.9004 load factor (based on Small Industrial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = \$22.96 x HP

Incentives:

All Units:	\$18.50 per HP
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	10.88 yrs
Payback Post-Incentive:	2.11 yrs
Incentive/Cost Ratio:	81%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost algorithms are calculated based on incremental costs from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and the expected mix of motors offered under this measure.

Nonresidential Equipment
Motor Efficiency Table

Horsepower	EFC 1200	EFC 1800	EFC 3600	ODP 1800
1.0	.825	.855	.770	.855
1.5	.875	.865	.840	.865
2.0	.885	.865	.855	.865
3.0	.895	.895	.865	.895
5.0	.895	.895	.885	.895
7.5	.910	.917	.895	.910
10.0	.910	.917	.902	.917
15.0	.917	.924	.910	.930
20.0	.917	.930	.910	.930
25.0	.930	.936	.917	.936
30.0	.930	.936	.917	.941
40.0	.941	.941	.924	.941
50.0	.941	.945	.930	.945
60.0	.945	.950	.936	.950
75.0	.945	.954	.936	.950
100.0	.950	.954	.941	.954
125.0	.950	.954	.950	.954
150.0	.958	.958	.950	.958
200.0	.958	.962	.954	.958
250.0	.958	.962	.958	.958
300.0	.958	.962	.958	.958
350.0	.958	.962	.958	.958
400.0	.958	.962	.958	.958
450.0	.958	.962	.958	.962
500.0	.958	.962	.958	.962

Nonresidential Equipment
Air Cooled Ice Maker - Condensing

Description: ENERGY STAR Qualified Air Cooled Ice Maker – Remote Condensing
Baseline: Standard Equipment *
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kwh} = (\text{K1} + (\text{HARV x K2})) \text{ x HARV x DAYS})$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

K1: 0.8000 if HARV < 1000, 0.4600 if HARV >= 1000 (from ENERGY STAR savings calculator)
K2: -0.0003 if HARV < 1000, 0.0000 if HARV >= 1000 (from ENERGY STAR savings calculator)
HARV: harvest rate in pounds of ice per day (from application)
DAYS: 274 assumed days of operation per year (from ENERGY STAR savings calculator)
LF: 0.8336 load factor (based on Large Commercial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $140

Incentives:

All Units: $35
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.66 yrs
Payback Post-Incentive: 1.24 yrs
Incentive/Cost Ratio: 25%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Air Cooled Ice Maker - Head

Description: ENERGY STAR Qualified Air Cooled Ice Maker – Ice Making Head
Baseline: Standard Equipment *
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kwh} = (\text{K1} + (\text{HARV x K2})) \text{ x HARV x DAYS})$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

K1: 1.0300 if HARV < 450, 0.6900 if HARV >= 450 (from ENERGY STAR savings calculator)
K2: -0.0009 if HARV < 450, -0.0001 if HARV >= 450 (from ENERGY STAR savings calculator)
HARV: harvest rate in pounds of ice per day (from application)
DAYS: 274 assumed days of operation per year (from ENERGY STAR savings calculator)
LF: 0.8336 load factor (based on Large Commercial – Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$140$$

Incentives:

All Units: $35
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.79 yrs
Payback Post-Incentive: 1.34 yrs
Incentive/Cost Ratio: 25%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Refrigerator – Glass Door

Description: ENERGY STAR Qualified Glass Door Refrigerator
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

$$\text{Annual kwh} = (K1 + (V \times K2)) \times DAYS)$$

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div LF$$

K1: 1.958 if (0 < V < 15)
2.290 if (15 <= V < 30)
0.715 if (30 <= V <50)
1.840 if (50 <=V) (from ENERGY STAR savings calculator)
K2: 0.002 if (0 < V < 15)
-0.020 if (15 <= V < 30)
0.320 if (30 <= V < 50)
0.010 if (50 <= V) (from ENERGY STAR savings calculator)
V: volume of refrigerator in cubic feet (from application)
DAYS: 365 assumed days of operation per year (from ENERGY STAR savings calculator)
LF: 0.7609 load factor (based on Small Commercial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $704.49

Incentives:

All Units: $500
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 9.92 yrs
Payback Post-Incentive: 2.88 yrs
Incentive/Cost Ratio: 71%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Refrigerator – Solid Door

Description: ENERGY STAR Qualified Solid Door Refrigerator
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

$$\text{Annual kwh} = (K1 + (V \times K2)) \times DAYS)$$

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div LF$$

K1: 0.629 if (0 < V < 15)
-0.160 if (15 <= V < 30)
0.405 if (30 <= V <50)
0.624 if (50 <=V) (from ENERGY STAR savings calculator)
K2: 0.011 if (0 < V < 15)
0.063 if (15 <= V < 30)
0.044 if (30 <= V < 50)
0.040 if (50 <= V) (from ENERGY STAR savings calculator)
V: volume of refrigerator in cubic feet (from application)
DAYS: 365 assumed days of operation per year (from ENERGY STAR savings calculator)
LF: 0.7609 load factor (based on Small Commercial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $124

Incentives:

All Units: $35
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 2.23 yrs
Payback Post-Incentive: 1.60 yrs
Incentive/Cost Ratio: 28%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Freezer – Solid Door

Description: ENERGY STAR Qualified Solid Door Freezer
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

$$\text{Annual kwh} = (K1 + (V \text{ x } K2)) \text{ x } DAYS)$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div LF$$

K1: 0.629 if (0 < V < 15)
-0.160 if (15 <= V < 30)
0.405 if (30 <= V <50)
0.624 if (50 <=V) (from ENERGY STAR savings calculator)
K2: 0.011 if (0 < V < 15)
0.063 if (15 <= V < 30)
0.044 if (30 <= V < 50)
0.040 if (50 <= V) (from ENERGY STAR savings calculator)
V: volume of refrigerator in cubic feet (from application)
DAYS: 365 assumed days of operation per year (from ENERGY STAR savings calculator)
LF: 0.7609 load factor (based on Small Commercial – Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $247

Incentives:

All Units: $75
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 2.58 yrs
Payback Post-Incentive: 1.80 yrs
Incentive/Cost Ratio: 30%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Oven – Convection

Description: ENERGY STAR Qualified Convection Oven
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

Annual Therms = 305.87

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.9389 load factor (based on Large Commercial Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $400

Incentives:

All Units:	$100
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	2.24 yrs
Payback Post-Incentive:	1.68 yrs
Incentive/Cost Ratio:	25%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Oven – Conveyor

Description: Energy Efficient Conveyor Oven
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 3{,}356.43$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.9389 load factor (based on Large Commercial Baseload load shape)
Minimum Efficiency Rating: 42%

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$2{,}696.25$$

Incentives:

All Units: $675
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.38 yrs
Payback Post-Incentive: 1.03 yrs
Incentive/Cost Ratio: 25%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure
Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Broiler - Upright

Description: Energy Efficient Broiler - Upright
Baseline: Standard Efficiency Broiler *
Useful Life: 12 Years *

Savings Algorithm *:

Annual Therms = 657

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.9389 load factor (based on Large Commercial Baseload load shape)
Minimum Efficiency Rating: 34%

Incremental Cost Algorithm *:

Incremental Cost = $2,500

Incentives:

All Units: $1,350
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 6.52 yrs
Payback Post-Incentive: 3.00 yrs
Incentive/Cost Ratio: 54%

Comments:

* Baseline, useful life, and incremental costs are provided by the program manager.

Savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure
Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Broiler – Salamander

Description: Energy Efficient Broiler - Salamander
Baseline: Standard Efficiency Broiler *
Useful Life: 12 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 657$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.9389 load factor (based on Large Commercial Baseload load shape)
Minimum Efficiency Rating: 34%

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$465$$

Incentives:

All Units: $125
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.21 yrs
Payback Post-Incentive: 0.89 yrs
Incentive/Cost Ratio: 27%

Comments:

* Baseline, useful life, and incremental costs are provided by the program manager.

Savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure
Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Steam Cooker

Description: ENERGY STAR Qualified Steam Cooker
Baseline: Standard Equipment *
Useful Life: 12 Years *

Savings Algorithm *:

Annual Therms = 800

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div LF$$

LF: 0.9389 load factor (based on Large Commercial Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $2,070

Incentives:

All Units:	$650
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.43 yrs
Payback Post-Incentive:	3.04 yrs
Incentive/Cost Ratio:	31%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
ECM Motor – Display Case Fan

Description: ECM Motor – Display Case Fan
Baseline: Standard Motor *
Useful Life: 12 Years *

Savings Algorithm *:

Annual kWh = 1018.06

$$\text{Peak kW} = \text{Annual Therms x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $243.00

Incentives:

All Units:	$75 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	3.64 yrs
Payback Post-Incentive:	2.52 yrs
Incentive/Cost Ratio:	31%

Comments:

* Baseline, useful life, savings, and incremental costs are based on the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Evaporator Fans – Walk-In Refrigerators

Description: High Efficiency Evaporator Fans – Walk-In Refrigerator
Baseline: Standard Evaporator Fan *
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 435.00$$

$$\text{Peak kW} = \text{Annual Therms x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $132.89

Incentives:

All Units:	$40 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.64 yrs
Payback Post-Incentive:	3.24 yrs
Incentive/Cost Ratio:	30%

Comments:

* Baseline, useful life, savings, and incremental costs are based on the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Central Air Conditioner (CAC) - Small

Description: Central Air Conditioners < 65 MBTu with SEER 14 and above
Baseline: Federal Standard 13 SEER *
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{WAnnual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{SEER}}\right) \text{ x CAP x CFLH}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: baseline efficiency SEER 13.0
SEER: efficiency rating of new CAC (from application … range = 14.0 to 25.0)
CAP: capacity of new CAC in MBTu (from application … range = 8.0 to 65.0)
CFLH: 811 equivalent full load hours of cooling (calculated from Assessment)
LF: 0.0899 load factor (based on Small Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$9.924 \text{ x (SEER} - \text{BASE) x CAP}$$

Incentives:

SEER 14-14.9:	$150 per ton (CAP / 12)
SEER 15-15.9:	$225 per ton (CAP / 12)
SEER 16 and above:	$300 per ton (CAP / 12)
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	32.00 yrs
Payback Post-Incentive:	1.60 yrs
Incentive/Cost Ratio:	95%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Central Air Conditioner (CAC) - Large

Description: Cooling DX > 65 MBTu with EER 11.2 and above
Baseline: Federal Standard 11 EER *
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EER}}\right) \text{ x CAP x CFLH}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

BASE: baseline efficiency EER 11.0
EER: efficiency rating of new unit (from application … range = 11.2 to 16.0)
CAP: capacity of new unit in MBTu (from application … range = 65.0 to 235.0)
CFLH: 2,281 equivalent full load hours of cooling (calculated from Assessment)
LF: 0.1251 load factor (based on Large Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$11.449 \text{ x (EER} - \text{BASE) x CAP}$$

Incentives:

EER 11.2-11.9: $50 per ton (CAP / 12)
EER 12-12.9: $100 per ton (CAP / 12)
EER 13 and above: $150 per ton (CAP / 12)
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 9.18 yrs
Payback Post-Incentive: 3.53 yrs
Incentive/Cost Ratio: 62%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Furnace

Description: High Efficiency Furnace < 250 MBTu with AFUE 92% and above
Baseline: Federal Standard Efficiency Furnace < 250 MBTu with 90% AFUE *
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{AFUE}}\right) \text{ x CAP x HFLH}$$

$$\text{Peak Therms} = \text{ Annual kWh x } \frac{1}{365} \div \text{LF}$$

BASE: baseline efficiency 0.9000 AFUE
AFUE: efficiency rating of new unit (from application … range = 0.9200 to 0.9800)
CAP: capacity of new unit in MBTu (from application)
HFLH: 69.355 equivalent full load hours of heating (calculated from Assessment)
LF: 0.2039 load factor (based on Small Commercial – Heating load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$655.26 \text{ x (AFUE} - \text{BASE) x CAP}$$

Incentives:

AFUE 0.920 – 0.939:	$17.50 x CAP
AFUE 0.94 and above:	$20.00 x CAP
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	13.47 yrs
Payback Post-Incentive:	4.88 yrs
Incentive/Cost Ratio:	64%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Furnace Fan

Description:	ECM Motor – Gas Furnace < 250 MBTu
Baseline:	Standard Motor *
Useful Life:	15 Years *

Savings Algorithm *:

Annual kWh = 866.46

Peak kW = 0

Incremental Cost Algorithm *:

Incremental Cost = $200

Incentives:

All Units:	$75 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	3.87 yrs
Payback Post-Incentive:	2.42 yrs
Incentive/Cost Ratio:	38%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Furnace fans must be installed in furnaces < 250 MBTu and must achieve a CEE air handling ratio < 0.02.

Nonresidential Equipment
Boiler

Description:	High Efficiency Boiler with AFUE > 85% and above
Baseline:	Federal Standard Efficiency Boiler 82% AFUE *
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{AFUE}}\right) \text{ x CAP x HFLH}$$

$$\text{Peak Therms} = \text{ Annual kWh x } \frac{1}{365} \div \text{LF}$$

BASE: baseline efficiency 0.8200 AFUE
AFUE: efficiency rating of new unit (from application … range = 0.8500 to 0.9800)
CAP: capacity of new unit in MBTu (from application…maximum 300 MBTuh)
HFLH: 51.94 equivalent full load hours of heating (calculated from Assessment)
LF: 0.1348 load factor (based on Large Commercial – Heating load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$154.42 \text{ x (AFUE} - \text{BASE) x CAP}$$

Incentives:

AFUE 0.850 – 0.899:	$2.00 x CAP
AFUE 0.900 – 0.949:	$4.00 x CAP
AFUE 0.95 and above:	$6.00 x CAP
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	3.78 yrs
Payback Post-Incentive:	2.81 yrs
Incentive/Cost Ratio:	26%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Air Source Heat Pump (ASHP)

Description:	Air Source Heat Pump < 65 MBTu with SEER >= 14 or HSPF >= 8
Baseline:	Federal Standard Air Source Heat Pump with 13 SEER and 7.7 HSPF *
Useful Life:	18 Years *

Savings Algorithm *:

$$\text{Cooling kWh} = \left(\frac{1}{\text{SEER(base)}} - \frac{1}{\text{SEER(act)}}\right) \text{ x CAP x CFLH}$$

$$\text{Heating kWh} = \left(\frac{1}{\text{HSPF(base)}} - \frac{1}{\text{HSPF(act)}}\right) \text{ x CAP x HFLH}$$

$$\text{Annual kWh} = \text{Cooling kWh} + \text{Heating kWh}$$

$$\text{Peak kW} = \text{ Cooling kWh x } \frac{1}{8760} \div \text{LF}$$

SEER(base):	baseline efficiency SEER 13.0
SEER(act):	cooling efficiency rating of new ASHP (from rebate application … range = 14.0 to 25.0)
HSPF(base):	baseline efficiency HSPF 7.7
HSPF(act):	heating efficiency rating of new ASHP (from rebate application … range = 8.0 to 11.0)
CFLH:	1,506 equivalent full load hours of cooling (calculated from Assessment)
HFLH:	4,017 equivalent full load hours of heating (calculated from Assessment)
CAP:	capacity of cooling system in MBTu (from rebate application … range = 8.0 to 65.0)
LF:	0.0899 load factor (based on Small Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = (\$9.928 \text{ x (SEER(act)} - \text{SEER(base)) x CAP}) + (\$19.037 \text{ x (HSPF(act)} - \text{HSPF(base)) x CAP})$$

Incentives:

SEER 14-14.9:	$200 per ton (CAP / 12)
SEER 15-15.9:	$350 per ton (CAP / 12)
SEER 16 and above:	$500 per ton (CAP / 12)
HSPF 8-8.9:	$150 per ton (CAP / 12) additional to SEER rebate
HSPF 9 and above:	$300 per ton (CAP / 12) additional to SEER rebate
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	10.79 yrs
Payback Post-Incentive:	3.81 yrs
Incentive/Cost Ratio:	71%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Ground Source Heat Pump (GSHP)

Description:	Ground Source Heat Pump with EER >= 17 or COP >= 3.6
Baseline:	Federal Standard Air Source Heat Pump with 10.6 EER and 3.2 COP *
Useful Life:	15 Years *

Savings Algorithm *:

$$\text{Cooling kWh} = \left(\frac{1}{\text{EER(base)}} - \frac{1}{\text{EER(act)}}\right) \text{ x CAP x CFLH}$$

$$\text{Heating kWh} = \left(\frac{1}{\text{COP(base)}} - \frac{1}{\text{COP(act)}}\right) \text{ x CAP x HFLH}$$

$$\text{Annual kWh} = \text{Cooling kWh} + \text{Heating kWh}$$

$$\text{Peak kW} = \text{Cooling kWh x } \frac{1}{8760} \div \text{LF}$$

EER(base):	baseline efficiency EER 10.6
EER(act):	cooling efficiency rating of new GSHP (from rebate application … range = 17.0 to 40.0)
COP(base):	baseline efficiency COP 3.2
COP(act):	heating efficiency rating of new GSHP (from rebate application … range = 3.6 to 5.0)
CFLH:	1,288 equivalent full load hours of cooling (calculated from Assessment)
HFLH:	2,898 equivalent full load hours of heating (calculated from Assessment)
CAP:	capacity of cooling system in MBTu (from rebate application … range = 10.0 to 100.0)
LF:	0.0899 load factor (based on Small Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = (\$15.825 \text{ x } (\text{SEER(act)} - \text{SEER(base)}) \text{ x CAP}) + (\$539.13 \text{ x } (\text{HSPF(act)} - \text{HSPF(base)}) \text{ x CAP})$$

Incentives:

EER 17-19.9:	$600 per ton (CAP / 12)
EER 19-24.9:	$900 per ton (CAP / 12)
EER 25 and above:	$1,200 per ton (CAP / 12)
COP 3.6-3.9:	$300 per ton (CAP / 12) additional to EER rebate
COP 4 and above:	$600 per ton (CAP / 12) additional to EER rebate
Incentive Cap:	70% of total cost
Financing:	none

Note: Incentives for GSHPs are split evenly between loop and unit. If only the unit is being replaced, incentives are 50% of those shown above.

Simple Payback:

Payback Pre-Incentive:	12.38 yrs
Payback Post-Incentive:	3.74 yrs
Incentive/Cost Ratio:	70%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Packaged Terminal Air Conditioner (PTAC)

Description: High Efficiency Packaged Terminal Air Conditioner
Baseline: Standard Packaged Terminal Air Conditioner *
Useful Life: 9 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 6.453 \text{ x CAP}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

CAP: capacity of new unit in MBTu (from application … range = 8.0 to 24.0)
LF: 0.0899 load factor (based on Small Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$7.333 \text{ x CAP}$$

Incentives:

All Installations:	$78 per ton (CAP / 12)
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	15.24 yrs
Payback Post-Incentive:	1.73 yrs
Incentive/Cost Ratio:	89%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Chiller – Air Cooled

Description: Air Cooled Chiller with Condenser at 10.00 EER
Baseline: Air Cooled Chiller with Condenser at 9.56 EER (standard) *
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = (\text{KTON(base)} - \text{KTON(eff)}) \text{ x CAP x FACTOR}$$

$$\text{Peak kW} = \text{Cooling kWh x } \frac{1}{8760} \div \text{LF}$$

KTON(base): baseline efficiency rating 1.30
KTON(eff): efficiency rating of new chiller (from rebate application … range = 1.00 to 1.20)
FACTOR: 192.90 kWh savings factor (calculated from Assessment)
CAP: capacity of chiller in tons (from rebate application … range = 20.0 to 500.0)
LF: 0.1251 load factor (based on Large Commercial – Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$112.70 \text{ x CAP}$$

Incentives:

All Installations: $100 x CAP
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 50.95 yrs
Payback Post-Incentive: 5.74 yrs
Incentive/Cost Ratio: 89%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Chiller – Water Cooled

Reasons for Revisions (01/01/2014):

Measure removed

Nonresidential Equipment
Programmable Thermostat – Electric Heating

Description: Programmable Thermostat – Electric Heating
Baseline: Standard Thermostat – Electric Heating
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 1,856.63

Peak kW = 0

Incremental Cost Algorithm *:

Incremental Cost = $63.88

Incentives:

All Installations:	$25 per thermostat
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	0.58 yrs
Payback Post-Incentive:	0.35 yrs
Incentive/Cost Ratio:	39%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost is calculated as the full cost of a commercial programmable thermostat less the base cost of a standard residential thermostat.

This measure is available to customers taking electric service only from MidAmerican.

Nonresidential Equipment
Programmable Thermostat – Electric Cooling

Description: Programmable Thermostat – Electric Cooling
Baseline: Standard Thermostat – Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 633.92$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.0899 load factor (based on Small Commercial Base - Cooling load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$63.88$$

Incentives:

All Installations:	$25 per thermostat
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.35 yrs
Payback Post-Incentive:	0.82 yrs
Incentive/Cost Ratio:	39%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost is calculated as the full cost of a commercial programmable thermostat less the base cost of a standard residential thermostat.

This measure is available to customers taking electric service only from MidAmerican.

Nonresidential Equipment
Programmable Thermostat – Electric Heating + Cooling

Description: Programmable Thermostat – Electric Heating + Cooling
Baseline: Standard Thermostat – Electric Heating + Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 2022.39$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7362 load factor (based on Small Commercial Heat - Cooling + Heating load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$63.88$$

Incentives:

All Installations: $25 per thermostat
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.52 yrs
Payback Post-Incentive: 0.31 yrs
Incentive/Cost Ratio: 39%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost is calculated as the full cost of a commercial programmable thermostat less the base cost of a standard residential thermostat.

This measure is available to customers taking electric service only from MidAmerican.

Nonresidential Equipment
Programmable Thermostat – Gas Heat

Description: Programmable Thermostat – Gas Heat
Baseline: Standard Thermostat – Gas Heat
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 160.29$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $63.88

Incentives:

All Installations: $25 per thermostat
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.66 yrs
Payback Post-Incentive: 0.40 yrs
Incentive/Cost Ratio: 39%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost is calculated as the full cost of a commercial programmable thermostat less the base cost of a standard residential thermostat.

This measure is available to customers taking gas service only from MidAmerican.

Nonresidential Equipment
Programmable Thermostat – Gas Heat + Electric Cooling

Description:	Programmable Thermostat – Gas Heat + Electric Cooling
Baseline:	Standard Thermostat – Gas Heat + Electric Cooling
Useful Life:	15 Years *

Savings Algorithm *:

Annual kwh = 633.92

Annual Therms = 160.29

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.0899 load factor (based on Small Commercial Base – Cooling load shape)
LF(gas):	0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm *:

Incremental Cost = $63.88

Incentives:

All Installations:	$25 per thermostat
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	0.45 yrs
Payback Post-Incentive:	0.27 yrs
Incentive/Cost Ratio:	39%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost is calculated as the full cost of a commercial programmable thermostat less the base cost of a standard residential thermostat.

This measure is available to customers taking gas and electric service from MidAmerican that use gas for heating and electricity for cooling.

Nonresidential Equipment
Desuperheater

Description: Add-On Desuperheater – Ground Source Heat Pump
Baseline: No Desuperheater
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 1342.86$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.8152 load factor (based on Small Commercial Heat - Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = \$600$$

Incentives:

All Installations:	$400 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	6.83 yrs
Payback Post-Incentive:	2.28 yrs
Incentive/Cost Ratio:	67%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Water Heater – Electric

Description: High Efficiency Electric Water Heater with Energy Factor 0.93 and above
Baseline: Standard Electric Water Heater with Energy Factor = 0.92 (federal standard)
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = [\text{EF(act)} - \text{EF(base)}] \text{ x UEC}$$

$$\text{Peak kW} = \text{ Annual Therms x } \frac{1}{8760} \div \text{LF}$$

EF(act): Energy Factor of new water heater (from application … range = 0.93 to 0.99)
EF(base): Baseline Energy Factor 0.92
UEC: 10,347.23 Unit Energy Consumption factor (calculated from Assessment)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = [\text{EF(act)} - \text{EF(base)}] \text{ x \$3,763.59}$$

Incentives:

All Installations: $35 per unit
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	5.56 yrs
Payback Post-Incentive:	3.30 yrs
Incentive/Cost Ratio:	35%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Water Heater – Gas Small

Description:	High Efficiency Gas Water Heater <= 60 Gallons and Energy Factor 0.65 and above
Baseline:	Standard Gas Water Heater <= 60 Gallons and Energy Factor = 0.59 (federal standard)
Useful Life:	13 Years *

Savings Algorithm *:

$$\text{Annual Therms} = [\text{EF(act)} - \text{EF(base)}] \text{ x UEC}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

EF(act):	Energy Factor of new water heater (from application … range = 0.65 to 0.90)
EF(base):	Baseline Energy Factor 0.59
UEC:	3,043.61 Unit Energy Consumption factor (calculated from Assessment)
LF:	0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = [\text{EF(act)} - \text{EF(base)}] \text{ x } \$2{,}126.84$$

Incentives:

All Installations:	$25 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.19 yrs
Payback Post-Incentive:	0.79 yrs
Incentive/Cost Ratio:	33%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Water Heater – Gas Large

Description:	High Efficiency Gas Water Heater > 60 Gallons and Energy Factor 0.65 and above
Baseline:	Standard Gas Water Heater > 60 Gallons and Energy Factor = 0.59 (federal standard)
Useful Life:	13 Years *

Savings Algorithm *:

$$\text{Annual Therms} = [\text{EF(act)} - \text{EF(base)}] \text{ x UEC}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF}$$

EF(act):	Energy Factor of new water heater (from application … range = 0.65 to 0.90)
EF(base):	Baseline Energy Factor 0.59
UEC:	11,715.10 Unit Energy Consumption factor (calculated from Assessment)
LF:	0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = [\text{EF(act)} - \text{EF(base)}] \text{ x \$3,291.33}$$

Incentives:

All Installations:	$125 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	0.48 yrs
Payback Post-Incentive:	0.35 yrs
Incentive/Cost Ratio:	27%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Water Heater – Gas Tankless

Description:	High Efficiency Tankless Gas Water Heater and Energy Factor 0.82 and above
Baseline:	Standard Gas Water Heater > 60 Gallons and Energy Factor = 0.59 (federal standard)
Useful Life:	13 Years *

Savings Algorithm *:

$$\text{Annual Therms} = [\text{EF(act)} - \text{EF(base)}] \text{ x UEC}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

EF(act):	Energy Factor of new water heater (from application … range = 0.82 to 0.90)
EF(base):	Baseline Energy Factor 0.59
UEC:	3,889.71 Unit Energy Consumption factor (calculated from Assessment)
LF:	0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm *:

$$\text{Incremental Cost} = [\text{EF(act)} - \text{EF(base)}] \text{ x } \$2{,}889.29$$

Incentives:

All Installations:	$250 per unit
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.27 yrs
Payback Post-Incentive:	0.90 yrs
Incentive/Cost Ratio:	29%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 3,400 (9.315 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm *:

$2.17 per lamp

Incentives:

All Installations: Upstream incentives only.
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.39 yrs
Payback Post-Incentive: 0.19 yrs
Incentive/Cost Ratio: 51%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Incremental cost algorithms are adjusted for known cost of baseline equipment per conversations with ICF Consulting.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Equipment
CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 3,400 (9.315 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm *:

$6.27 per lamp

Incentives:

All Installations: Upstream incentives only.
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.60 yrs
Payback Post-Incentive: 0.43 yrs
Incentive/Cost Ratio: 28%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Equipment
CFL Exterior Lighting

Description: CFL Exterior Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 1,424 (3.9 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm *:

$4.02 per lamp

Incentives:

All Installations: Upstream incentives only
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.43 yrs
Payback Post-Incentive: 0.24 yrs
Incentive/Cost Ratio: 44%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Equipment
LED Interior Standard Lighting

Description: LED Interior Omni-Directional A Lamp
Baseline: EISA Standard Lighting
Useful Life: 4 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 3,400 (9.315 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
43	7

Incremental Cost Algorithm *:

$27.16 per lamp

Incentives:

All Installations: $10.00 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 3.39 yrs
Payback Post-Incentive: 2.14 yrs
Incentive/Cost Ratio: 37%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description

Nonresidential Equipment
LED Exit Light

Description: LED Exit Light
Baseline: CFL Exit Light
Useful Life: 11 Years *

Savings Algorithm *:

Annual kwh = 175.20

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $68.22

Incentives:

All Installations: $50 per installation
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.49 yrs
Payback Post-Incentive: 2.27 yrs
Incentive/Cost Ratio: 73%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Occupancy Sensor – Fixture Mounted

Description:	Occupancy Sensor – Fixture Mounted (Controlling >= 100 Watts)
Baseline:	No Sensor
Useful Life:	10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \frac{\text{WATT}}{1000} \text{ x HOURS x FACTOR}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT:	Total wattage of lights operated by timers (from application)
HOURS:	total hours the timers are expected to operate (from application … 1,000 to 8,760)
FACTOR:	30% energy savings factor
LF:	0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm:

Total cost of the occupancy sensor.

Incentives:

All Installations:	$20 per installation
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.65 yrs
Payback Post-Incentive:	1.21 yrs
Incentive/Cost Ratio:	27%

Comments:

* Baseline, savings algorithm, and useful life are provided by the program manager.

Nonresidential Equipment
Occupancy Sensor – Wall/Ceiling Mounted

Description: Occupancy Sensor – Wall/Ceiling Mounted (Controlling >= 400 Watts)
Baseline: No Sensor
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \frac{\text{WATT}}{1000} \text{ x HOURS x FACTOR}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT: Total wattage of lights operated by timers (from application)
HOURS: total hours the timers are expected to operate (from application … 1,000 to 8,760)
FACTOR: 30% energy savings factor
LF: 0.7609 load factor (based on Small Commercial - Baseload load shape)

Incremental Cost Algorithm:

Total cost of the occupancy sensor.

Incentives:

All Installations: $35 per installation
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 4.43 yrs
Payback Post-Incentive: 2.36 yrs
Incentive/Cost Ratio: 47%

Comments:

* Baseline, savings algorithm, and useful life are provided by the program manager.

Nonresidential Equipment
Lighting Timers

Description: Lighting Timer/Clock – Commercial Grade
Baseline: No Time Clock
Useful Life: 9 Years *

Savings Algorithm:

$$\text{Annual kWh} = \frac{\text{WATT}}{1000} \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT: Total wattage of lights operated by timers (from application)
HOURS: total hours the timers are expected to operate (from application … 1,000 to 8,760)
LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm:

Total cost of installation

Incentives:

All Installations: $35 per installation
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 0.72 yrs
Payback Post-Incentive: 0.54 yrs
Incentive/Cost Ratio: 25%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Metal Halide Fixtures – Pulse Start

Description: High Efficiency Metal Halide Fixtures – Pulse Start
Baseline: Standard High Density Discharge Lighting
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): Wattage of baseline fixture based on 480 watts
WATT(eff): Wattage of efficient fixture (from application … range = 3 to 400)
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.8336 load factor (based on Large Commercial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $216.16

Incentives:

All Installations: $60 per fixture
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 4.88 yrs
Payback Post-Incentive: 3.53 yrs
Incentive/Cost Ratio: 28%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Revisions:

Savings Algorithm: Clarification of savings calculations

Nonresidential Equipment
Metal Halide Lamps – 360 Watt

Description:	High Efficiency Metal Halide Lamps – 360 Watt
Baseline:	Standard 400 Watt Lamp
Useful Life:	15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	Wattage of baseline lamp based on 400 watts
WATT(eff):	360 watts
HOURS:	Annual lamp operating hours (from application … range = 1,000 to 8,760 hours)
LF:	0.8336 load factor (based on Large Commercial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $56.66

Incentives:

All Installations:	$20 per lamp
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.88 yrs
Payback Post-Incentive:	3.16 yrs
Incentive/Cost Ratio:	35%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Description: Clarification of measure description
Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive structure

Nonresidential Equipment
Metal Halide Lamps – 330 Watt

Description:	High Efficiency Metal Halide Lamps – 330 Watt
Baseline:	Standard 400 Watt Lamp
Useful Life:	15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	Wattage of baseline lamp based on 400 watts
WATT(eff):	330 watts
HOURS:	Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF:	0.8336 load factor (based on Large Commercial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $73.00

Incentives:

All Installations:	$20 per lamp
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	3.63 yrs
Payback Post-Incentive:	2.63 yrs
Incentive/Cost Ratio:	27%

Comments:

* Baseline, useful life, savings, and incremental costs are provided by the program manager.

Useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Description: Clarification of measure description
Savings Algorithm: Clarification of savings calculation
Incentives: Clarification of incentive structure

Nonresidential Equipment
Traffic Light – 12" Red Ball

Description: LED 12" Red Ball Traffic Light
Baseline: Standard 12" Red Ball Traffic Light
Useful Life: 8 Years *

Savings Algorithm *:

Annual kwh = 919.80

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $73.58

Incentives:

All Installations:	$25 per installation
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.73 yrs
Payback Post-Incentive:	1.15 yrs
Incentive/Cost Ratio:	34%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Savings and incremental costs are calculated from data in the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and assumed wattages for baseline and efficient lamps taken from ENERGY STAR information.

Nonresidential Equipment
Traffic Light – 12" Green Ball

Description: LED 12" Green Ball Traffic Light
Baseline: Standard 12" Green Ball Traffic Light
Useful Life: 8 Years *

Savings Algorithm *:

Annual kwh = 884.76

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF}$$

LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $202.61

Incentives:

All Installations:	$125 per installation
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.97 yrs
Payback Post-Incentive:	1.90 yrs
Incentive/Cost Ratio:	62%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Savings and incremental costs are calculated from data in the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and assumed wattages for baseline and efficienct lamps taken from ENERGY STAR information.

Nonresidential Equipment
Traffic Light – 12" Green Arrow

Description: LED 12" Green Arrow Traffic Light
Baseline: Standard 12" Green Arrow Traffic Light
Useful Life: 8 Years *

Savings Algorithm *:

Annual kwh = 919.80

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $143.21

Incentives:

All Installations: $75 per installation
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 3.38 yrs
Payback Post-Incentive: 1.61 yrs
Incentive/Cost Ratio: 52%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Savings and incremental costs are calculated from data in the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and assumed wattages for baseline and efficient lamps taken from ENERGY STAR information.

Nonresidential Equipment
Traffic Light – 12” Don’t Walk

Description: LED 12” Don’t Walk Traffic Light
Baseline: Standard 12” Don’t Walk Traffic Light
Useful Life: 8 Years *

Savings Algorithm *:

Annual kwh = 902.28

$$\text{Peak kW} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF}$$

LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Incremental Cost Algorithm *:

Incremental Cost = $94.74

Incentives:

All Installations:	$25 per installation
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	2.28 yrs
Payback Post-Incentive:	1.68 yrs
Incentive/Cost Ratio:	26%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Savings and incremental costs are calculated from data in the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential and assumed wattages for baseline and efficienct lamps taken from ENERGY STAR information.

Nonresidential Equipment
T-5 High Bay Fluorescent Lighting

Description: High Bay Fluorescent High Output Lighting
Baseline: Standard Lighting
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.9004 load factor (based on Small Industrial - Baseload load shape)

Length of Lamp (ft)	Number of Lamps	WATT(base)	WATT(eff)
4	3	295	179
4	4	458	234
4	5	458	296
4	6	458	351
4	7	850	410
4	**8**	850	468

Incremental Cost Algorithm *:

Full cost of the fixture.

Incentives:

All Installations: $21.50 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 7.56 yrs
Payback Post-Incentive: 2.88 yrs
Incentive/Cost Ratio: 66%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
Baseline: Clarification of measure baseline
Incentives: Clarification of incentive structure

Nonresidential Equipment
T-8 Fluorescent Lighting

Description: Fluorescent Reduced Wattage Lighting
Baseline: Standard Lighting
Useful Life: 13 Years *

Savings Algorithm*:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below (averages of various manufacturers laboratory tests … ANSI)
WATT(eff): See table below (averages of various manufacturers laboratory tests … ANSI)
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.8336 load factor (based on Large Commercial - Baseload load shape)

Length of Lamp (ft)	Number of Lamps	WATT(base)	WATT(eff)
2	1	28	20
2	2	56	33
4	1	43	31
4	2	72	59
4	3	115	89
4	4	120	93
8	1	75	58
8	2	160	109

Incremental Cost Algorithm *:

Full cost of the fixture.

Incentives:

All Installations: $12.00 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.17 yrs
Payback Post-Incentive: 1.04 yrs
Incentive/Cost Ratio: 87%

Comments:

* Baseline and useful life are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description
Baseline: Clarification of measure baseline
Incentives: Clarification of incentive structure

Nonresidential Equipment
T-8 High Bay Fluorescent Lighting

Description: Standard Lighting
Baseline: High Bay Fluorescent High Output Lighting
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.8336 load factor (based on Large Commercial - Baseload load shape)

Length of Lamp (ft)	Number of Lamps	WATT(base)	WATT(eff)
4	3	295	112
4	4	458	151
4	5	458	189
4	6	458	226
4	7	850	264
4	8	850	301

Incremental Cost Algorithm *:

Full cost of the fixture.

Incentives:

All Installations: $8.50 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 3.01 yrs
Payback Post-Incentive: 2.24 yrs
Incentive/Cost Ratio: 26%

Comments:

* Baseline and useful life are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Equipment
Reduced Wattage T-8 Replacing Standard T-8 Lighting

Description: Reduced Wattage T-8 800-Series Lamps
Baseline: Standard T-8 Lighting
Useful Life: 5 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.8336 load factor (based on Large Commercial - Baseload load shape)

Length of Lamp (ft)	Number of Lamps	WATT(base)	WATT(eff)
4	1	31	27

Incremental Cost Algorithm *:

Full cost of the lamp less $3.

Incentives:

All Installations: $3.25 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 3.32 yrs
Payback Post-Incentive: 1.25 yrs
Incentive/Cost Ratio: 62%

Comments:

* Baseline, savings, incremental cost, and useful life are provided by the program manager.

Lamps must replace T-8 fluorescent lighting in existing buildings, be 800 series fluorescent only, and be included in a CEE approved qualified products list.

Nonresidential Equipment
Reduced Wattage T-8 Replacing Standard T-12 Lighting

Description: Reduced Wattage T-8 800-Series Lamps
Baseline: Standard T-12 Lighting
Useful Life: 5 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: Annual fixture operating hours (from application … range = 1,000 to 8,760 hours)
LF: 0.8336 load factor (based on Large Commercial - Baseload load shape)

Length of Lamp (ft)	Number of Lamps	WATT(base)	WATT(eff)
4	1	43	27
4	2	72	51
4	3	115	77
4	4	144	96

Incremental Cost Algorithm *:

Full cost of the lamp less $3.

Incentives:

All Installations: $13.50 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.37 yrs
Payback Post-Incentive: 0.98 yrs
Incentive/Cost Ratio: 29%

Comments:

* Baseline, savings, incremental cost, and useful life are provided by the program manager.

Lamps must replace T-12 fluorescent lighting in existing buildings, be 800 series fluorescent only, and be included in a CEE approved qualified products list.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Equipment
LED Lamp < 9 Watts

Description:	LED Lamp < 9 Watts screw-in for Directional Lighting
Baseline:	EISA Standard Lighting
Useful Life:	10 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	See table below
WATT(eff):	Wattage of efficient fixture (from application)
HOURS:	Annual lamp operating hours (from application … range =1,000 to 8,760)
LF:	0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)

Incremental Cost Algorithm *:

Full cost of the lamp less $4

Incentives:

All Installations:	$15 per lamp
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	4.92 yrs
Payback Post-Incentive:	2.29 yrs
Incentive/Cost Ratio:	54%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the program manager.

Lamps must be purchased from a non-instant buy-down retailer.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description

Nonresidential Equipment
LED Lamp ≥ 9 Watts

Description:	LED Lamp ≥ 9 Watts screw-in for Directional Lighting
Baseline:	EISA Standard Lighting
Useful Life:	10 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	See table below
WATT(eff):	Wattage of efficient fixture (from application)
HOURS:	Annual lamp operating hours (from application … range =1,000 to 8,760)
LF:	0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)

Incremental Cost Algorithm *:

Full cost of the lamp less $4

Incentives:

All Installations:	$15 per lamp
Incentive Cap:	70% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	2.41 yrs
Payback Post-Incentive:	1.46 yrs
Incentive/Cost Ratio:	39%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the program manager.

Lamps must be purchased from a non-instant buy-down retailer.

Reasons for Revisions (01/01/2014):

Description: Clarification of measure description

Nonresidential Equipment
LED Fixture < 100 Watt HID Replacement

Description: LED Fixture Replacing < 100 Watt Equivalent HID Lamp
Baseline: Standard HID Lamp
Useful Life: 23 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): Wattage of efficient fixture (from application)
HOURS: Annual lamp operating hours (from application … range =1,000 to 8,760)
LF: 0.8336 load factor (based on Large Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)

Incremental Cost Algorithm *:

Full cost of the lamp less $50

Incentives:

All Installations: $50 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 6.10 yrs
Payback Post-Incentive: 4.24 yrs
Incentive/Cost Ratio: 30%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the program manager.

Fixtures must replace high-intensity discharge systems and must meet Design Light Consortium technical requirements table v1.6.

Nonresidential Equipment
LED Fixture 100-249 Watt HID Replacement

Description: LED Fixture Replacing 100-249 Watt Equivalent HID Lamp
Baseline: Standard HID Lamp
Useful Life: 23 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): Wattage of efficient fixture (from application)
HOURS: Annual lamp operating hours (from application … range =1,000 to 8,760)
LF: 0.8336 load factor (based on Large Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)

Incremental Cost Algorithm *:

Full cost of the lamp less $100

Incentives:

All Installations: $75 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	7.27 yrs
Payback Post-Incentive:	5.39 yrs
Incentive/Cost Ratio:	26%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the program manager.

Fixtures must replace high-intensity discharge systems and must meet Design Light Consortium technical requirements table v1.6.

Nonresidential Equipment
LED Fixture >= 250 Watt HID Replacement

Description: LED Fixture Replacing >= 250 Watt Equivalent HID Lamp
Baseline: Standard HID Lamp
Useful Life: 23 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): Wattage of efficient fixture (from application)
HOURS: Annual lamp operating hours (from application … range =1,000 to 8,760)
LF: 0.8336 load factor (based on Large Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)

Incremental Cost Algorithm *:

Full cost of the lamp less $200

Incentives:

All Installations: $100 per lamp
Incentive Cap: 70% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 5.34 yrs
Payback Post-Incentive: 4.01 yrs
Incentive/Cost Ratio: 25%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the program manager.

Fixtures must replace high-intensity discharge systems and must meet Design Light Consortium technical requirements table v1.6.

Nonresidential Equipment
Custom Measure

Description: Custom Energy Efficiency Measure
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kwh = Varies

Annual Therms = Varies

Peak kW = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be set at the greater of 25% of the incremental cost of the measure or an amount necessary to achieve a post-incentive payback period of 25% of the measure's useful life. Incentives may not exceed 60% of the eligible project cost and the incentive may not reduce the simple payback period for the project to less than two years.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Nonresidential Custom program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All custom measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014)

Incentives: Clarification of incentive structure

Commercial Assessment
Track I Small – Assessment

Description: Track I Small Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Assessments are limited to one per customer during the plan period.

Commercial Assessment
Track I Small – Low Flow Showerhead – Electric

Description: Low Flow Showerhead (2.0 gpm) - Gas
Baseline: Existing Showerhead
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 469.08$$

$$\text{Peak kW} = \text{Annual kW x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.17 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a Track I Small assessment.

  Non-energy related benefits are included associated with saving 3,650 gallons of water per year (based on the water savings for residential low flow showerheads and the decrease in efficiency of commercial showerheads) at $0.00688 per gallon, which equals $25.11 per showerhead per year.

Commercial Assessment
Track I Small – Low Flow Showerhead – Gas

Description: Low Flow Showerhead (2.0 gpm) - Gas
Baseline: Existing Showerhead
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 66.30$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.8971 load factor (based on Small Commercial Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.15 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Non-energy related benefits are included associated with saving 3,650 gallons of water per year (based on the water savings for residential low flow showerheads and the decrease in efficiency of commercial showerheads) at $0.00688 per gallon, which equals $25.11 per showerhead per year.

Commercial Assessment
Track I Small – Faucet Aerator – Electric

Description: Low Flow Aerator (0.5 gpm) - Electric
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

Annual kWh = 139.67

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.12 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a Track I Small assessment.

  Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Commercial Assessment
Track I Small – Faucet Aerator – Gas

Description: Low Flow Aerator (0.5 gpm) - Gas
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 25.29$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.11 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Commercial Assessment
Track I Small – Kitchen Aerator – Electric

Description: Low Flow Aerator (0.5 gpm) - Electric
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 139.67$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.13 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Commercial Assessment
Track I Small – Kitchen Aerator – Gas

Description: Low Flow Aerator (0.5 gpm) - Gas
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 25.29$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.12 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Commercial Assessment
Track I Small – Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 18.64 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.70 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

Annual Themrs = 3.92 x FT

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range – 1.0 to 6.0)
LF: 0.8971 load factor (based on Small Commercial Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive: 0.38 yrs
Payback Post-Incentive: instant
Incentive/Cost Ratio: 100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Low Flow Spray Head – Electric

Description: Low Flow Spray Head (1.0 gpm) - Electric
Baseline: Existing Spray Head
Useful Life: 5 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 1{,}214.00$$

$$\text{Peak kW} = \text{Annual kW x } \frac{1}{8760} \div \text{LF}$$

LF: 0.8336 load factor (based on Large Commercial Base - Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.83 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Low Flow Spray Head – Gas

Description: Low Flow Spray Head (1.0 gpm) - Gas
Baseline: Existing Spray Head
Useful Life: 5 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 45.96$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.9389 load factor (based on Large Commercial Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.44 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – LED Exit Sign Retrofit Kits (2.4 w)

Description: LED Exit Light
Baseline: CFL Exit Light
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 175.20$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.70 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a Track I Small assessment.

Reasons for Revisions (01/01/2014):

Clarification of measure name

Commercial Assessment
Track I Small – Vending Machine Controls

Description: Refrigerated Vending Machine Controls
Baseline: No Controls
Useful Life: 3 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 1{,}394.81$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.8336 load factor (based on Large Commercial Base - Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.27 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Programmable Thermostat – Electric Cooling

Description: Programmable Thermostat – Electric Cooling
Baseline: Standard Thermostat – Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 633.92$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.0899 load factor (based on Small Commercial Base - Cooling load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	1.79 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Programmable Thermostat – Electric Heating + Cooling

Description: Programmable Thermostat – Electric Heating + Cooling
Baseline: Standard Thermostat – Electric Heating + Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 2{,}022.39$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7362 load factor (based on Small Commercial Heat - Cooling + Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.68 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric service only from MidAmerican.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Programmable Thermostat – Gas Heat

Description: Programmable Thermostat – Gas Heat
Baseline: Standard Thermostat – Gas Heat
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 160.29$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.88 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking gas service only from MidAmerican.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – Programmable Thermostat – Gas Heat + Electric Cooling

Description:	Programmable Thermostat – Gas Heat + Electric Cooling
Baseline:	Standard Thermostat – Gas Heat + Electric Cooling
Useful Life:	15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = 633.92$$

$$\text{Annual Therms} = 160.29$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.0899 load factor (based on Small Commercial Base – Cooling load shape)
LF(gas):	0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.59 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available to customers taking electric and gas service only from MidAmerican.

This measure is a direct install measure available in a Track I Small assessment.

Commercial Assessment
Track I Small – CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 3,400 (9.315 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commerical Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.92 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Commercial Assessment
Track I Small – CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 3,400 (9.315 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.68 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Commercial Assessment
Track I Small – CFL Exterior Lighting

Description:	CFL Exterior Lighting
Baseline:	EISA Standard Lighting
Useful Life:	2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	See table below
WATT(eff):	See table below
HOURS:	1,424 (3.9 hours per day x 365 days)
LF:	0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.95 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a Track I Small assessment.

Useful lives are adjusted downward from residential useful lives to account for longer operating hours.

Commercial Assessment
Track I Small/Large – Wall Insulation – Electric Heat

Description:	Wall Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	4.29 assumed R-Value of existing structural components
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0029795 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 100 to 20,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$3 per SQFT
Incentive Cap:	80% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Small/Large – Wall Insulation – Electric Heat + Electric Cooling

Description:	Wall Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	4.29 assumed R-Value of existing structural components
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0015576 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 100 to 20,000)
LF(elec):	0.1475 load factor (based on Small Commercial – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$3 per SQFT
Incentive Cap:	80% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	20.56 yrs
Payback Post-Incentive:	4.69 yrs
Incentive/Cost Ratio:	77%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Comments: Clarification of eligibility

Commercial Assessment
Track I Small/Large – Wall Insulation – Gas Heat

Description: Wall Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 25 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 4.29 assumed R-Value of existing structural components
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0001270 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 100 to 20,000)
LF(gas): 0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: $3 per SQFT
Incentive Cap: 80% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking gas service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Small – Wall Insulation – Gas Heat + Electric Cooling

Description:	Wall Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	4.29 assumed R-Value of existing structural components
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0009506 kWh savings per CDD per square foot (calculated from Assessment)
K(gas):	0.0001270 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 100 to 20,000)
LF(elec):	0.0899 load factor (based on Small Commercial Cooling load shape)
LF(gas):	0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$3 per SQFT
Incentive Cap:	80% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	24.72 yrs
Payback Post-Incentive:	5.39 yrs
Incentive/Cost Ratio:	78%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small assessment to customers taking gas and electric service from MidAmerican.

Commercial Assessment
Track I Small/Large – Attic Insulation – Electric Heat

Description: Attic Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base): R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new): R-Value of new insulation (from application … range = 24 to 70)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec): 0.0010057 kWh savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 100 to 20,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: $# per SQFT
Incentive Cap: 80% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Small/Large – Attic Insulation – Electric Heat + Electric Cooling

Description: Attic Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0005262 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 100 to 20,000)
LF(elec):	0.1475 load factor (based on Small Commercial – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: $# per SQFT
Incentive Cap: 80% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Small/Large – Attic Insulation – Gas Heat

Description: Attic Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 25 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new): R-Value of new insulation (from application … range = 24 to 70)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0000429 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 100 to 20,000)
LF(gas): 0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: $# per SQFT
Incentive Cap: 80% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ----- yrs
Payback Post-Incentive: ----- yrs
Incentive/Cost Ratio: --%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking gas service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Small/Large – Attic Insulation – Gas Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	25 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 24)
RVAL(new):	R-Value of new insulation (from application … range = 3 to 24)
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0003212 kWh savings per CDD per square foot (calculated from Assessment)
K(gas):	0.0000429 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 100 to 20,000)
LF(elec):	0.0899 load factor (based on Small Commercial Cooling load shape)
LF(gas):	0.2039 load factor (based on Small Commercial Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	$# per SQFT
Incentive Cap:	80% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	----- yrs
Payback Post-Incentive:	----- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a Track I Small or Large assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track I Large – Walkthrough

Description:	Track I Large Walkthrough
Baseline:	N/A
Useful Life:	N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting a walkthrough.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Walkthroughs are limited to one per customer during the plan period.

Commercial Assessment
Track I Large – Electric Technical Assistance

Description: Track I Large Electric Design
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for Track I Large electric projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Reasons for Revisions (01/01/2014):

Clarification of measure name

Commercial Assessment
Track I Large – Gas Technical Assistance

Description: Track I Large Gas Design
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for Track I Large gas projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Reasons for Revisions (01/01/2014):

Clarification of measure name

Commercial Assessment
Track I Large – Electric Custom Project

Description: Track I Large – Electric Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kwh = Varies

Peak kW = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved plus a bonus incentive for multiple projects equal to 25% of the standard incentive, with the total payback for the project being no less than one year.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Track I Large Commercial Assessment program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Commercial Assessment
Track I Large – Gas Custom Project

Description: Track I Large – Gas Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual Therms = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved plus a bonus incentive for multiple projects equal to 25% of the standard incentive, with the total payback for the project being no less than one year.

Simple Payback:

Payback Pre-Incentive:	varies
Payback Post-Incentive:	varies
Incentive/Cost Ratio:	varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Track I Large Commercial Assessment program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

  All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Commercial Assessment
Track II – Building Tune-Up Assessment

Description: Track II Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual cost associated with conducting an assessment.

Incentives:

50/50 cost share on assessment and measure implementation costs.

Incentives for group of opportunities implemented; incentives cannot exceed an established cap.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Walkthroughs are limited to one per customer during the plan period.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Measure Description: Clarification of measure description
Incremental Cost Algorithm: Clarification of incremental costs
Incentives: Clarification of incentive structure

Commercial Assessment
Track II – Retrocommissioning Assessment

Reasons for Revisions (01/01/2014):

New measure

Commercial Assessment
Track II – Electric Technical Assistance

Description: Track II Electric Technical Assistance
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for Track II electric projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Reasons for Revisions (01/01/2014):

Clarification of measure name
Measure Description: Clarification of measure description

Commercial Assessment
Track II – Gas Technical Assistance

Description: Track II Technical Assistance
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for Track II gas projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Reasons for Revisions (01/01/2014):

Clarification of measure name
Measure Description: Clarification of measure description

Commercial Assessment
Track II – BOC Training

Description: Track II BOC Training
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting BOC Training.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Industrial Partners
Walkthrough

Description: Industrial Partners – Walkthrough
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting a walkthrough.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Walkthroughs are limited to one per customer during the plan period.

Reasons for Revisions (01/01/2014):

Clarification of measure name

Industrial Partners
Technical Assistance/Implementation Support

Description: Industrial Partners – Technical Assistance/Implementation Support
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting technical assistance and implementation support for Industrial Partners projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incremental Cost Algorithm: Clarification of incremental costs

Industrial Partners
Electric Project

Description: Industrial Partners – Electric Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kWh = Varies

Peak kW = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved. A bonus incentive equal to one year of estimated bill savings is available when multiple projects are completed. The total incentive may not reduce the simple payback period for a project to less than one year, and the total incentive with bonus may not exceed 80% of the eligible project cost.

Simple Payback:

Payback Pre-Incentive:	varies
Payback Post-Incentive:	varies
Incentive/Cost Ratio:	varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Industrial Partners program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Industrial Partners
Gas Project

Description: Industrial Partners – Gas Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual Therms = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved. A bonus incentive equal to one year of estimated bill savings is available when multiple projects are completed. The total incentive may not reduce the simple payback period for a project to less than one year, and the total incentive with bonus may not exceed 80% of the eligible project cost.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Industrial Partners program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Industrial Partners
Electric Project – Commercial

Description: Industrial Partners – Commercial Electric Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kWh = Varies

Peak kW = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved. A bonus incentive equal to one year of estimated bill savings is available when multiple projects are completed. The total incentive may not reduce the simple payback period for a project to less than one year, and the total incentive with bonus may not exceed 80% of the eligible project cost.

Simple Payback:

Payback Pre-Incentive:	varies
Payback Post-Incentive:	varies
Incentive/Cost Ratio:	varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Industrial Partners program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Industrial Partners
Gas Project – Commercial

Description: Industrial Partners – Commercial Gas Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual Therms = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the normal prescriptive or custom incentive for the specific measures involved. A bonus incentive equal to one year of estimated bill savings is available when multiple projects are completed. The total incentive may not reduce the simple payback period for a project to less than one year, and the total incentive with bonus may not exceed 80% of the eligible project cost.

Simple Payback:

Payback Pre-Incentive:	varies
Payback Post-Incentive:	varies
Incentive/Cost Ratio:	varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Industrial Partners program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Clarification of measure name
Incentives: Clarification of incentive structure

Commercial New Construction
Design Assistance – Electric

Description: Design Assistance - Electric
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for commercial new construction electric projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Commercial New Construction
Design Assistance – Electric + Gas

Description: Design Assistance – Electric + Gas
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for commercial new construction combination projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Commercial New Construction
Design Assistance – Gas

Description: Design Assistance – Gas
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual costs associated with conducting project design work for commercial new construction gas projects.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Commercial New Construction
Electric Project

Description: Commercial New Construction – Electric Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kWh = Varies

Peak kW = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the sliding scale provided on the Sliding Scale page and is based on the percentage above building code baseline that savings for a project are expected to achieve. Project incentives will be capped at a one year simple payback, may not exceed 70% of the total bundled incremental project cost beyond energy code requirements, and may not exceed $1 million per building.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Commercial New Construction program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Commercial New Construction Electric + Gas Project

Description: Commercial New Construction – Electric + Gas Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kWh = Varies

Annual Therms = Varies

Peak kW = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the sliding scale provided on the Sliding Scale page and is based on the percentage above building code baseline that savings for a project are expected to achieve. Project incentives will be capped at a one year simple payback, may not exceed 70% of the total bundled incremental project cost beyond energy code requirements, and may not exceed $1 million per building.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Commercial New Construction program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

  All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Commercial New Construction
Gas Project

Description: Commercial New Construction – Gas Project
Baseline: Varies *
Useful Life: Varies *

Savings Algorithm *:

Annual kWh = Varies

Annual Therms = Varies

Peak kW = Varies

Peak Therms = Varies

Incremental Cost Algorithm *:

Incremental Cost = Varies

Incentives *:

Incentives will be based on the sliding scale provided on the Sliding Scale page and is based on the percentage above building code baseline that savings for a project are expected to achieve. Project incentives will be capped at a one year simple payback, may not exceed 70% of the total bundled incremental project cost beyond energy code requirements, and may not exceed $1 million per building.

Simple Payback:

Payback Pre-Incentive:	varies
Payback Post-Incentive:	varies
Incentive/Cost Ratio:	varies

Comments:

* Baseline, useful life, savings, incremental costs, and incentives will be determined by MidAmerican's implementation contractors for the Commercial New Construction program on a project by project basis and will be pre-approved by MidAmerican prior to approval of the project.

  All measures must be determined to be cost effective by MidAmerican prior to approval of the project. Cost effectiveness will be determined by the Societal Cost test, and all measures must have a SOC ratio of at least 1.00 in order to qualify for this program.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Commercial New Construction
Sliding Scale

Savings Percentage	Electric Incentive Rate $/kWh	Gas Incentive Rate $/therm
15%	$.060	$.600
16%	$.064	$.643
17%	$.069	$.687
18%	$.073	$.730
19%	$.077	$.773
20%	$.082	$.817
21%	$.086	$.860
22%	$.090	$.903
23%	$.095	$0.947
24%	$.099	$0.990
25%	$.103	$1.033
26%	$.108	$1.077
27%	$.112	$1.120
28%	$.116	$1.163
29%	$.121	$1.207
30%	$.125	$1.250
31%	$.129	$1.293
32%	$.134	$1.337
33%	$.138	$1.380
34%	$.142	$1.423
35%	$.147	$1.467
36%	$.151	$1.510
37%	$.155	$1.553
38%	$.160	$1.597
39%	$.164	$1.640
40%	$.170	$1.700
41%	$.171	$1.710
42%	$.172	$1.720
43%	$.173	$1.730
44%	$.174	$1.740
45%	$.175	$1.750
46%	$.176	$1.760
47%	$.177	$1.770
48%	$.178	$1.780
49%	$.179	$1.790
50%	$.180	$1.800
51%	$.181	$1.810
52%	$.182	$1.820
53%	$.183	$1.830
54%	$.184	$1.840
55%	$.185	$1.850
56%	$.186	$1.860
57%	$.187	$1.870
58%	$.188	$1.880
59%	$.189	$1.890
60% and above	$.190	$1.900

Reasons for Revisions (01/01/2014):

Sliding Scale: Clarification of incentive structure

Nonresidential Load Management
Curtailment Event – Shed

Description: Nonresidential Load Curtailment - Shed
Baseline: Normal Nonresidential Load - Shed
Useful Life: 1 Year

Savings Algorithm:

Savings per curtailment event for kWh and Peak kW will be determined through an analysis of the customer's metered load immediately before, during, and immediately after a curtailment event. The customer's actual hourly metered load will be compared to a baseline load that represents what the customer's loads would have been in the absence of a curtailment.

Incremental Cost Algorithm:

N/A

Incentives:

$46/kW for three year contracts
$40/kW for one year contracts

Simple Payback:

N/A

Comments:

Participation and incentives are also subject to all MidAmerican curtailment tariffs and contracts.

Nonresidential Load Management
Curtailment Event – Generators (BTMG)

Description: Nonresidential Load Curtailment - BTMG
Baseline: Normal Nonresidential Load - BTMG
Useful Life: 1 Year

Savings Algorithm:

Savings per curtailment event for kWh and Peak kW will be determined through an analysis of the customer's metered load immediately before, during, and immediately after a curtailment event. The customer's actual hourly metered load will be compared to a baseline load that represents what the customer's loads would have been in the absence of a curtailment.

Incremental Cost Algorithm:

N/A

Incentives:

$46/kW for three year contracts
$40/kW for one year contracts

Simple Payback:

N/A

Comments:

Participation and incentives are also subject to all MidAmerican curtailment tariffs and contracts.

Nonresidential Load Management
Curtailment Event – Firm Load

Description: Nonresidential Load Curtailment – Firm Load
Baseline: Normal Nonresidential Load – Firm Load
Useful Life: 1 Year

Savings Algorithm:

Savings per curtailment event for kWh and Peak kW will be determined through an analysis of the customer's metered load immediately before, during, and immediately after a curtailment event. The customer's actual hourly metered load will be compared to a baseline load that represents what the customer's loads would have been in the absence of a curtailment.

Incremental Cost Algorithm:

N/A

Incentives:

$46/kW for three year contracts
$40/kW for one year contracts

Simple Payback:

N/A

Comments:

Participation and incentives are also subject to all MidAmerican curtailment tariffs and contracts.

Residential Appliance Recycling
Refrigerators

Description:	Removal of Secondary Refrigerator/Freezer Combo
Baseline:	Existing Non-Efficient Refrigerator/Freezer Combo *
Useful Life:	5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual refrigerator being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Size (in cubic feet)
- Configuration (top freezer, bottom freezer, side-by-side, or single door)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $50 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	1.33 yrs	1.09 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	144%	154%

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Appliance Recycling
Freezers

Description: Removal of Secondary Stand-Alone Freezer
Baseline: Existing Non-Efficient Secondary Stand-Alone Freezer *
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual freezer being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Size (in cubic feet)
- Configuration (chest, upright)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $50 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	1.65 yrs	1.36 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	144%	154%

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Appliance Recycling
Window Air Conditioners

Description: Removal of Secondary Window Air Conditioner
Baseline: Existing Secondary Non-Efficient Window Air Conditioner *
Useful Life: 3 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual window air conditioner being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Capacity (in MBTu)
- Efficiency rating (EER)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $25 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	1.95 yrs	0.00 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	137%	-------

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Appliance Recycling
Energy Savings Kit

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	1.45 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.29 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Nonresidential Appliance Recycling
Refrigerators

Description: Removal of Secondary Refrigerator/Freezer Combo
Baseline: Existing Non-Efficient Refrigerator/Freezer Combo *
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual refrigerator being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Size (in cubic feet)
- Configuration (top freezer, bottom freezer, side-by-side, or single door)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $50 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	1.52 yrs	1.25 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	144%	154%

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Appliance Recycling
Freezers

Description: Removal of Secondary Stand-Alone Freezer
Baseline: Existing Non-Efficient Secondary Stand-Alone Freezer *
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual freezer being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Size (in cubic feet)
- Configuration (chest, upright)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $50 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	1.89 yrs	1.55 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	144%	154%

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Nonresidential Appliance Recycling
Window Air Conditioners

Description: Removal of Secondary Window Air Conditioner
Baseline: Existing Secondary Non-Efficient Window Air Conditioner *
Useful Life: 3 Years *

Savings Algorithm:

$$\text{Annual kwh} = \text{UEC x PART}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

UEC: annual energy consumption of the individual window air conditioner being recycled
PART: portion of the year the unit would have operated if not recycled through this program
LF: 0.0899 load factor (based on Small Commercial Base – Cooling load shape)

UEC for each unit will be determined by the appliance recycling contractor on a case by case basis and will consider the following characteristics:

- Age (in years, or year of manufacture)
- Capacity (in MBTu)
- Efficiency rating (EER)

Incremental Cost Algorithm:

Incremental Cost = cost of removal specified in the appliance recycling contractors contract.

Incentives:

Incremental cost (payable to the recycling contractor) plus $25 (payable to the customer).

Simple Payback:

	First Unit	Second Unit
Payback Pre-Incentive:	2.41 yrs	0.00 yrs
Payback Post-Incentive:	instant	instant
Incentive/Cost Ratio:	137%	-------

Comments:

* Baseline and useful life is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Residential Upstream Retail Lighting

CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm *:

$2.17 per lamp

Incentives:

All Installations: $1.00-1.25 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.05 yrs
Payback Post-Incentive: 0.52 yrs
Incentive/Cost Ratio: 51%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.29 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Incremental cost algorithms are adjusted for known cost of baseline equipment per conversations with ICF Consulting.

Residential Upstream Retail Lighting
CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 6 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm *:

$6.27 per lamp

Incentives:

All Installations: $1.75 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 1.70 yrs
Payback Post-Incentive: 1.23 yrs
Incentive/Cost Ratio: 28%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.35 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Incremental cost algorithms are adjusted for known cost of baseline equipment per conversations with ICF Consulting.

Residential Upstream Retail Lighting
CFL Exterior Lighting

Description:	CFL Exterior Lighting
Baseline:	EISA Standard Lighting
Useful Life:	3 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base):	See table below
WATT(eff):	See table below
HOURS:	1,424 (3.9 hours per day x 365 days)
LF:	0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm *:

$4.02 per lamp

Incentives:

All Installations:	$1.75 per lamp
Incentive Cap:	N/A
Financing:	none

Simple Payback:

Payback Pre-Incentive:	1.31 yrs
Payback Post-Incentive:	0.74 yrs
Incentive/Cost Ratio:	44%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.41 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Incremental cost algorithms are adjusted for known cost of baseline equipment per conversations with ICF Consulting.

Residential Upstream Retail Lighting
LED Interior Standard Lighting

Description: LED Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 12 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	7

Incremental Cost Algorithm *:

$27.16 per lamp

Incentives:

All Installations: $10.00 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 8.52 yrs
Payback Post-Incentive: 5.39 yrs
Incentive/Cost Ratio: 37%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.61 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Upstream Retail Lighting
LED Interior Specialty Lighting

Description: LED Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 12 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{x HOURS}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
62	7

Incremental Cost Algorithm *:

$28.87 per lamp

Incentives:

All Installations: $10.00 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 6.21 yrs
Payback Post-Incentive: 4.06 yrs
Incentive/Cost Ratio: 35%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $0.71 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Upstream Retail Lighting
LED Exterior Lighting

Description: LED Exterior Lighting
Baseline: EISA Standard Lighting
Useful Life: 12 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 1,424 (3.9 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	7

Incremental Cost Algorithm *:

$36.60 per lamp

Incentives:

All Installations: $21.00 per lamp
Incentive Cap: N/A
Financing: none

Simple Payback:

Payback Pre-Incentive: 6.77 yrs
Payback Post-Incentive: 4.92 yrs
Incentive/Cost Ratio: 27%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy benefits of $1.54 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Low Income
Energy Wise Kits

Description: Energy Wise Kits – Gas + Electric
Useful Life: 5 Years

Savings Algorithm:

$$\text{Annual kWh} = 385.00$$

$$\text{Annual Therms} = 26.00$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.9561 load factor (based on Residential Base – Base load shape)
LF(gas): 1.0288 load factor (based on Residential Bsse load shape)

Incremental Cost Algorithm:

Incremental Cost = $65.00

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive: 1.45 yrs
Payback Post-Incentive: instant
Incentive/Cost Ratio: 100%

Comments:

Residential Low Income
Low Income Activity

Description: Low Income Activity Measures
Baseline: Varies
Useful Life: Varies

Savings Algorithm:

Annual kwh = Varies

Annual Therms = Varies

Peak kW = Varies

Peak Therms = Varies

Incremental Cost Algorithm:

Incremental Cost = Varies

Incentives:

Incentives are set by contract with MidAmerican's low income contractors.

Simple Payback:

Payback Pre-Incentive: varies
Payback Post-Incentive: varies
Incentive/Cost Ratio: varies

Comments:

Residential Low Income
Window Insulation Kits

Reasons for Revisions (01/01/2014):

Measure removed

Residential Low Income
Multifamily Audit

Description: Multifamily Audit
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an audit.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Residential Low Income
Multifamily Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.32 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Non-energy related benefits are included associated with saving 1,530 gallons of water per year at $0.00688 per gallon, which equals $10.53 per aerator per year.

Residential Low Income
Home Energy Reports

Description: Home Energy Reports – Gas Heat + Electric Cooling
Baseline: No Home Energy Reports – Gas Heat + Electric Cooling
Useful Life: 1 Year

Savings Algorithm:

Annual kWh = Savings are determined by the program contractor in aggregate

Annual Therms = Savings are determined by the program contractor in aggregate

$$\text{Peak kWh} = \text{Annual kWh} \times \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.3466 load factor (based on Residential Base – Whole House load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of providing home energy reports

Incentives:

Incentives are set at 100% of incremental cost

Simple Payback:

Payback Pre-Incentive:	0.81 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* This measure is available to customers on an invitation only basis.

Nonresidential Low Income
Multifamily Audit

Description: Multifamily Audit
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an audit.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Nonresidential Low Income
Multifamily Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.35 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy related benefits are included associated with saving 1,530 gallons of water per year at $0.00688 per gallon, which equals $10.53 per aerator per year.

Nonresidential Low Income
Multifamily Low Flow Showerhead – Gas

Description: Low Flow Showerhead (1.5 gpm) - Gas
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 14.82$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.54 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Residential Multifamily Housing
Multifamily Housing Assessment

Description:	Multi-Family Assessment
Baseline:	N/A
Useful Life:	N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Cost Allocation

Electric:	65%
Gas:	35%

Comments:

Assessments are limited to one per customer during the plan period.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Residential Multifamily Housing
Low Flow Showerhead – Electric

Description: Low Flow Showerhead (1.5 gpm) - Electric
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 308.05$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.22 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Unit application only

Includes hand-held low flow showerheads

Reasons for Revisions (01/01/2014):

Comments: Clarification of eligibility

Residential Multifamily Housing
Low Flow Showerhead – Gas

Description: Low Flow Showerhead (1.5 gpm) - Gas
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 14.82$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.26 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Unit application only

Includes hand-held low flow showerheads

Reasons for Revisions (01/01/2014):

Comments: Clarification of eligibility

Residential Multifamily Housing
Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.32 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Residential Multifamily Housing
Faucet Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.07$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.39 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Residential Multifamily Housing
Kitchen Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.50 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Residential Multifamily Housing
Kitchen Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.07$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.61 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Residential Multifamily Housing
Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 11.52 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.99 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual Themrs} = 0.52 \text{ x FT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.52 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
LED Exit Light

Description: LED Exit Light
Baseline: CFL Exit Light
Useful Life: 11 Years *

Savings Algorithm *:

Annual kWh = 175.20

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.70 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Residential Multifamily Housing
Programmable Thermostat – Gas Heat

Description: Programmable Thermostat – Gas Heat
Baseline: Standard Thermostat – Gas Heat
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 12.17$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	12.49 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment to customers taking gas service only from MidAmerican.

Residential Multifamily Housing
Programmable Thermostat – Electric Cooling

Description: Programmable Thermostat – Electric Cooling
Baseline: Standard Thermostat – Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.87$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: instant
Incentive/Cost Ratio: 100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
Programmable Thermostat – Electric Heat + Electric Cooling

Description: Programmable Thermostat – Electric Heat + Electric Cooling
Baseline: Standard Thermostat – Electric Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 264.17$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
Programmable Thermostat – Electric Heat

Description:	Programmable Thermostat – Electric Heat
Baseline:	Standard Thermostat – Electric Heat
Useful Life:	15 Years *

Savings Algorithm *:

Annual kWh = 299.64

Peak kWh = 0

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
Programmable Thermostat – Gas Heat + Electric Cooling

Description:	Programmable Thermostat – Gas Heat + Electric Cooling
Baseline:	Standard Thermostat – Gas Heat + Electric Cooling
Useful Life:	15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.87$$

$$\text{Annual Therms} = 12.17$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec):	0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Residential Multifamily Housing
CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.15 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.29 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Multifamily Housing
CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 6 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	1.94 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.35 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Residential Multifamily Housing
Attic Insulation – Electric Heating

Description: Attic Insulation with Enhanced R-Value – Electric Heating
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(elec)x SQFT}$$

Peak kW = 0

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0065503 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	---- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Attic Insulation – Electric Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0029941 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	28.42 yrs
Payback Post-Incentive:	4.39 yrs
Incentive/Cost Ratio:	85%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Attic Insulation – Gas Heat

Description: Attic Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new): R-Value of new insulation (from application … range = 24 to 70)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 50 to 12,000)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap: 85% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: ---- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas service only from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Attic Insulation – Gas Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0023011 kWh savings per CDD per square foot (calculated from Assessment)
K(gas):	0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	---- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Wall Insulation – Electric Heat + Electric Cooling

Description: Wall Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 3.63 assumed R-Value of existing structural components
DD: 7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec): 0.0019978 kWh savings per DD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap: 75% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	8.89 yrs
Payback Post-Incentive:	2.22 yrs
Incentive/Cost Ratio:	75%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Wall Insulation – Gas Heat

Description:	Wall Insulation with Enhanced R-Value – Gas Heat
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	3.63 assumed R-Value of existing structural components
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas):	0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 6,000)
LF(gas):	0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	75% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	7.34 yrs
Payback Post-Incentive:	1.84 yrs
Incentive/Cost Ratio:	75%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas service only from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Multifamily Housing
Wall Insulation – Gas Heat + Electric Cooling

Description: Wall Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 3.63 assumed R-Value of existing structural components
CDD: 1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec): 0.0015354 kWh savings per CDD per square foot (calculated from Assessment)
K(gas): 0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap: 75% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: 5.70 yrs
Payback Post-Incentive: 1.43 yrs
Incentive/Cost Ratio: 75%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Multifamily Housing Assessment

Description: Multi-Family Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Cost Allocation

Electric:	30%
Gas:	70%

Comments:

Assessments are limited to one per customer during the plan period.

Reasons for Revisions (01/01/2014):

Cost Allocation: Added measure cost allocation

Nonresidential Multifamily Housing
Low Flow Showerhead – Electric

Description: Low Flow Showerhead (1.5 gpm) - Electric
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 308.05$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Nonresidential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.22 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

  Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Nonresidential Multifamily Housing
Low Flow Showerhead – Gas

Description: Low Flow Showerhead (1.5 gpm) - Gas
Baseline: Standard Showerhead (2.5 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 14.82$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Nonresidential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.26 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 7,300 gallons of water per year (20 minutes per day x 365 days x 1 gpm) at $0.00688 per gallon, which equals $50.22 per showerhead per year.

Nonresidential Multifamily Housing
Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Nonresidential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.32 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

  Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Nonresidential Multifamily Housing
Faucet Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.07$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Nonresidential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.39 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Nonresidential Multifamily Housing
Kitchen Aerator – Electric

Description:	Low Flow Aerator (1.5 gpm) - Electric
Baseline:	Standard Aerator (2.2 gpm)
Useful Life:	10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 43.08$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Nonresidential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.50 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

  Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Nonresidential Multifamily Housing
Kitchen Aerator – Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual Therms} = 2.07$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Nonresidential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.61 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Non-energy related benefits are included associated with saving 1,020 gallons of water per year at $0.00688 per gallon, which equals $7.02 per aerator per year.

Nonresidential Multifamily Housing
Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 11.52 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.99 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual Themrs} = 0.52 \text{ x FT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.52 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
Programmable Thermostat – Electric Cooling

Description: Programmable Thermostat – Electric Cooling
Baseline: Standard Thermostat – Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.87$$

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.0859 load factor (based on Residential Base – Cooling load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
Programmable Thermostat – Electric Heat + Electric Cooling

Description: Programmable Thermostat – Electric Heat + Electric Cooling
Baseline: Standard Thermostat – Electric Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

Annual kWh = 264.17

$$\text{Peak kWh} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
Programmable Thermostat – Electric Heat

Description:	Programmable Thermostat – Electric Heat
Baseline:	Standard Thermostat – Electric Heat
Useful Life:	15 Years *

Savings Algorithm *:

Annual kWh = 299.64

Peak kWh = 0

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
Programmable Thermostat – Gas Heat + Electric Cooling

Description: Programmable Thermostat – Gas Heat + Electric Cooling
Baseline: Standard Thermostat – Gas Heat + Electric Cooling
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 44.87$$

$$\text{Annual Therms} = 12.17$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

LF(elec): 0.0859 load factor (based on Residential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Residential Heating load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, savings, and incremental costs are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Reasons for Revisions (01/01/2014):

New measure

Nonresidential Multifamily Housing
LED Exit Light

Description: LED Exit Light
Baseline: CFL Exit Light
Useful Life: 11 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 175.20$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.70 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment.

Nonresidential Multifamily Housing
CFL Interior Standard Lighting

Description: CFL Interior Standard Lighting
Baseline: EISA Standard Lighting
Useful Life: 5 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Nonresidential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.07 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.29 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Nonresidential Multifamily Housing
CFL Interior Specialty Lighting

Description: CFL Interior Specialty Lighting
Baseline: EISA Standard Lighting
Useful Life: 6 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 949 (2.6 hours per day x 365 days)
LF: 0.9561 load factor (based on Nonresidential Base - Baseload load shape)

WATT(base)	WATT(eff)
62	15

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	1.95 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline and useful life data is taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a multi-family assessment to customers taking electric service from MidAmerican.

Non-energy benefits of $0.35 per lamp are included and are based on the annualized net present value of savings associated with not having to purchase multiple baseline bulbs with a shorter lifespan than the more efficient equipment.

Nonresidential Multifamily Housing
Windows – Electric Heat + Electric Cooling

Description: ENERGY STAR Rated Window – Electric Heat + Electric Cooling
Baseline: Standard Efficiency Window
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \text{K(elec) x (BASE} - \text{UF) x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

K(elec): 23.9781 kWh savings per square foot (calculated from Assessment)
BASE: baseline efficiency UF = 0.53
UF: efficiency rating of new window (from rebate application … range = 0.10 to 0.35)
SQFT: Total square feet of window (from application … 15 if not supplied)
LF(elec): 0.4653 load factor (based on Residential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of window

Incentives:

All Installations: $25 per window
Incentive Cap: 80% of total cost
Financing: yes

Simple Payback:

Payback Pre-Incentive:	21.94 yrs
Payback Post-Incentive:	4.88 yrs
Incentive/Cost Ratio:	78%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking electric service from MidAmerican.

Nonresidential Multifamily Housing
Attic Insulation – Electric Heating

Description:	Attic Insulation with Enhanced R-Value – Electric Heating
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(elec)x SQFT}$$

$$\text{Peak kW} = 0$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0065503 kWh savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	---- yrs
Payback Post-Incentive:	---- yrs
Incentive/Cost Ratio:	--%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a single family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Attic Insulation – Electric Heat + Electric Cooling

Description:	Attic Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline:	Existing R-Value
Useful Life:	20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0029941 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.4653 load factor (based on Nonresidential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	33.73 yrs
Payback Post-Incentive:	5.06 yrs
Incentive/Cost Ratio:	85%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Attic Insulation – Gas Heat

Description: Attic Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new): R-Value of new insulation (from application … range = 24 to 70)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas): 0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 50 to 12,000)
LF(gas): 0.2107 load factor (based on Nonresidential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap: 85% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive: ---- yrs
Payback Post-Incentive: ---- yrs
Incentive/Cost Ratio: --%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas service only from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Attic Insulation – Gas Heat + Electric Cooling

Description: Attic Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)}} - \frac{1}{\text{RVAL(new)}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 3 to 49)
RVAL(new):	R-Value of new insulation (from application … range = 24 to 70)
CDD:	1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec):	0.0023011 kWh savings per CDD per square foot (calculated from Assessment)
K(gas):	0.0002794 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 12,000)
LF(elec):	0.0859 load factor (based on Nonresidential Base – Cooling load shape)
LF(gas):	0.2107 load factor (based on Nonresidential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.032 x (R-value increase x area in square feet)] or 70% installed cost
Incentive Cap:	85% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	16.63 yrs
Payback Post-Incentive:	4.28 yrs
Incentive/Cost Ratio:	74%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Wall Insulation – Electric Heat + Electric Cooling

Description: Wall Insulation with Enhanced R-Value – Electric Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kWh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x DD x K(elec)x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	3.63 assumed R-Value of existing structural components
DD:	7,372 normal degree days for Iowa (system-wide weighted average for HDDs and CDDs combined)
K(elec):	0.0019978 kWh savings per DD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec):	0.4653 load factor (based on Nonresidential Heat – Cooling + Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost Incentive Cap: 75% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	17.74 yrs
Payback Post-Incentive:	3.28 yrs
Incentive/Cost Ratio:	72%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Wall Insulation – Gas Heat

Description: Wall Insulation with Enhanced R-Value – Gas Heat
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak Therms} = \text{ Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base):	R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new):	R-Value of new insulation (from application … range = 10 to 25)
EXIST:	3.63 assumed R-Value of existing structural components
HDD:	6,362 normal heating degree days for Iowa (system-wide weighted average)
K(gas):	0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT:	Total square feet of new insulation (from application … range = 50 to 6,000)
LF(gas):	0.2107 load factor (based on Nonresidential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations:	Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost Incentive
Incentive Cap:	75% of total cost
Financing:	none

Simple Payback:

Payback Pre-Incentive:	18.22 yrs
Payback Post-Incentive:	4.98 yrs
Incentive/Cost Ratio:	73%

Comments:

* Useful life and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas service only from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Nonresidential Multifamily Housing
Wall Insulation – Gas Heat + Electric Cooling

Description: Wall Insulation with Enhanced R-Value – Gas Heat + Electric Cooling
Baseline: Existing R-Value
Useful Life: 20 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x CDD x K(elec)x SQFT}$$

$$\text{Annual Therms} = \left(\frac{1}{\text{RVAL(base)} + \text{EXIST}} - \frac{1}{\text{RVAL(new)} + \text{EXIST}}\right) \text{ x HDD x K(gas)x SQFT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF(elec)}$$

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF(gas)}$$

RVAL(base): R-Value of existing insulation (from application … range = 0 to 19)
RVAL(new): R-Value of new insulation (from application … range = 10 to 25)
EXIST: 3.63 assumed R-Value of existing structural components
CDD: 1,010 normal cooling degree days for Iowa (system-wide weighted average)
HDD: 6,362 normal heating degree days for Iowa (system-wide weighted average)
K(elec): 0.0015354 kWh savings per CDD per square foot (calculated from Assessment)
K(gas): 0.0001864 therm savings per HDD per square foot (calculated from Assessment)
SQFT: Total square feet of new insulation (from application … range = 80 to 6,000)
LF(elec): 0.0859 load factor (based on Nonresidential Base – Cooling load shape)
LF(gas): 0.2107 load factor (based on Nonresidential Heating load shape)

Incremental Cost Algorithm:

Total cost of insulation

Incentives:

All Installations: Lesser of [$0.04 x (R-value increase x area in square feet)] or 70% installed cost Incentive
Incentive Cap: 75% of total cost
Financing: none

Simple Payback:

Payback Pre-Incentive:	6.97 yrs
Payback Post-Incentive:	1.74 yrs
Incentive/Cost Ratio:	75%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is available as a follow up measure to a multi-family assessment to customers taking gas and electric service from MidAmerican.

Reasons for Revisions (01/01/2014):

Incentives: Clarification of incentive structure

Residential Agriculture Assessment

Description: Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Contract cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Assessments are limited to one per customer during the plan period.

Residential Agriculture
CFL Exterior Lighting

Description: CFL Exterior Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 1,424 (3.9 hours per day x 365 days)
LF: 0.9561 load factor (based on Residential Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.83 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Direct install measures available through HomeCheck may be installed in agribusiness facilities; however residential farmhouse audits must be completed through HomeCheck.

Reasons for Revisions (01/01/2014):

Comments: Clarification of eligibility

Residential Agriculture
Bathroom Faucet Aerator – Electric

Description: Low Flow Aerator (1.5 gpm) - Electric
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 46.60$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.40 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

This measure is a direct install measure available in a single family assessment.

Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Residential Agriculture
Bathroom Faucet Aerator - Gas

Description: Low Flow Aerator (1.5 gpm) - Gas
Baseline: Standard Aerator (2.2 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

Annual Therms = 2.16

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.47 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

  Non-energy related benefits are included associated with saving 1,530 gallons of water per year (based on the ratio of kWh savings to water savings for low-flow showerheads) at $0.00688 per gallon, which equals $10.53 per aerator per year.

  Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Residential Agriculture
Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 11.52 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.9561 load factor (based on Residential Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.99 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Residential Agriculture
Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

Annual Themrs = 0.52 x FT

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 1.0288 load factor (based on Residential Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	2.52 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  This measure is a direct install measure available in a single family assessment.

  Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Nonresidential Agriculture
Assessment

Description: Assessment
Baseline: N/A
Useful Life: N/A

Savings Algorithm:

No savings are associated with this measure.

Incremental Cost Algorithm:

Actual cost associated with conducting an assessment.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	N/A
Payback Post-Incentive:	N/A
Incentive/Cost Ratio:	100%

Comments:

Assessments are limited to one per customer during the plan period.

Reasons for Revisions (01/01/2014):

Incremental Cost Algorithm: Clarification of incremental cost

Nonresidential Agriculture
CFL Exterior Lighting

Description: CFL Exterior Lighting
Baseline: EISA Standard Lighting
Useful Life: 2 Years *

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): See table below
WATT(eff): See table below
HOURS: 1,424 (3.9 hours per day x 365 days)
LF: 0.7609 load factor (based on Small Commercial Base - Baseload load shape)

WATT(base)	WATT(eff)
43	18

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.95 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and incremental cost algorithms are taken from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Direct install measures available through HomeCheck may be installed in agribusiness facilities; however residential farmhouse audits must be completed through HomeCheck.

Reasons for Revisions (01/01/2014):

Comments: Clarification of program design

Nonresidential Agriculture
Faucet Aerator – Electric

Description: Low Flow Aerator (0.5 gpm) - Electric
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 139.67$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.12 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Nonresidential Agriculture
Faucet Aerator – Gas

Description: Low Flow Aerator (0.5 gpm) - Gas
Baseline: Standard Aerator (3.0 gpm)
Useful Life: 10 Years *

Savings Algorithm *:

Annual Therms = 25.29

$$\text{Peak Therms} = \text{Annual Therms} \times \frac{1}{365} \div \text{LF}$$

LF: 0.8971 load factor (based on Small Commercial Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.11 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Non-energy related benefits are included associated with saving 5,464 gallons of water per year (based on the water savings for residential faucet aerators and the increase in efficiency of commercial aerators) at $0.00688 per gallon, which equals $37.59 per aerator per year.

Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Nonresidential Agriculture
Hot Water Pipe Insulation – Electric

Description: Hot Water Pipe Insulation (R-4) – Electric
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

$$\text{Annual kWh} = 18.64 \text{ x FT}$$

$$\text{Peak kW} = \text{Annual kWh x } \frac{1}{8760} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range = 1.0 to 6.0)
LF: 0.7609 load factor (based on Small Commercial Base – Baseload load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.70 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

  Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure

Nonresidential Agriculture
Hot Water Pipe Insulation – Gas

Description: Hot Water Pipe Insulation (R-4) – Gas
Baseline: No Hot Water Pipe Insulation
Useful Life: 13 Years *

Savings Algorithm *:

Annual Themrs = 3.92 x FT

$$\text{Peak Therms} = \text{Annual Therms x } \frac{1}{365} \div \text{LF}$$

FT: Linear feet of insulation installed (from assessment report … range – 1.0 to 6.0)
LF: 0.8971 load factor (based on Small Commercial Base load shape)

Incremental Cost Algorithm:

Actual cost associated with providing this measure.

Incentives:

Incentives are set at 100% of cost.

Simple Payback:

Payback Pre-Incentive:	0.38 yrs
Payback Post-Incentive:	instant
Incentive/Cost Ratio:	100%

Comments:

* Baseline, useful life, and savings are taken from or calculated from the 2014-2023 Iowa Statewide Assessment of Energy Efficiency Potential.

Any other direct install measures available through HomeCheck that can be installed in agribusiness program are applicable, excluding residential farmhouse.

Reasons for Revisions (01/01/2014):

New Measure