MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Executive Summary

General Description

MidAmerican Energy Company (MidAmerican) proposes to continue providing a comprehensive portfolio of energy efficiency programs in this 2018-2022 energy efficiency plan. MidAmerican has updated its avoided costs and has updated savings and incremental cost calculations to be consistent with the Iowa Technical Reference Manual, adjusted where appropriate for specific conditions in MidAmerican's South Dakota service territory. In addition, MidAmerican has prepared this plan by individually examining the cost-effectiveness of each of the measures offered, and has included only those that are expected to provide net benefits to MidAmerican's South Dakota customers.

Most programs will be offered as joint electric and natural gas programs. However, customers will only be eligible for the portions of the programs related to the energy service they purchase from MidAmerican. For example, customers who purchase natural gas only will not be eligible to receive rebates for central air conditioners which save electricity. For programs that by their nature save energy from multiple sources, MidAmerican will estimate a savings value based on its avoided cost for that energy, regardless of what entity provides the energy service.

Program List

The 2018-2022 South Dakota energy efficiency plan provides rebates and incentives for energy efficiency projects and equipment for South Dakota customers in the following programs:

Residential Equipment – This program provides rebates to encourage customers to purchase high-efficiency space conditioning equipment and smart thermostats.

Residential Load Management – This program provides financial incentives to customers that allow MidAmerican to control their central air conditioning on summer peak days.

Nonresidential Equipment – This program provides rebates to encourage customers to purchase specified efficient heating, cooling, and lighting equipment. This program also provides financial incentives to encourage customers to pursue energy efficiency projects or purchase efficient equipment that does not fit into the normal prescriptive rebate program.

Appliance Recycling – This program offers financial incentives to customers to stop using old, inefficient refrigerators and freezers and helps them dispose of the old units.

Budgets

Anticipated five-year spending for the 2018-2022 South Dakota energy efficiency plan is shown in the table below. MidAmerican proposes a budget of $3.1 million in energy efficiency over the five-year period, with $2.7 million of that for residential customers and $0.4 million for nonresidential

customers. MidAmerican's accounting systems will ensure that costs for providing the programs are recovered from the appropriate customers.

Electric Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$32,700	$38,020	$70,720
2019	$33,436	$38,020	$71,456
2020	$34,188	$38,020	$72,208
2021	$34,957	$38,020	$72,977
2022	$35,745	$38,020	$73,765
Total	**$171,026**	**$190,100**	**$361,126**

Gas Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$24,400	$528,209	$552,609
2019	$24,949	$528,209	$553,158
2020	$25,511	$528,209	$553,720
2021	$26,085	$528,209	$554,294
2022	$26,671	$528,209	$554,880
Total	**$127,616**	$2,641,045	$2,768,661

Total Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$57,100	$566,229	$623,329
2019	$58,385	$566,229	$624,614
2020	$59,699	$566,229	$625,928
2021	$61,042	$566,229	$627,271
2022	$62,416	$566,229	$628,645
Total	**$298,642**	**$2,831,145**	**$3,129,787**

Energy Savings

MidAmerican expects to help customers implement energy efficiency measures in their homes and businesses over the next five years that are expected to reduce MidAmerican's annual energy requirements by over 830,000 therms of natural gas and nearly 865,000 kilowatt-hours of electricity by 2022. Summer peak electric demand for South Dakota customers is also expected to be reduced by 400 kilowatts. Anticipated savings levels for the 2018-2022 South Dakota energy efficiency plan are as follows:

Electric Energy Programs

Electric Savings	Annual kWh	Peak kW
2018	172,894	47.35
2019	172,894	47.35
2020	172,894	47.35
2021	172,894	47.35
2022	172,894	47.35
Total	**864,470**	**236.75**

Electric Load Curtailment Programs

Electric Savings	Annual kWh	Peak kW
2018	2,288	155
2019	2,288	155
2020	2,288	155
2021	2,288	155
2022	2,288	155
Total	**11,440**	**575**

Gas Energy Programs

Gas Savings	Annual Therms	Peak Therms
2018	166,049	2,626.75
2019	166,049	2,626.75
2020	166,049	2,626.75
2021	166,049	2,626.75
2022	166,049	2,626.75
Total	**830,245**	**13,133.75**

The installed measures will continue to save customer energy and money for many years. Over the 30-year period that MidAmerican used to evaluate the costs and benefits of its energy efficiency programs, the programs are expected to save over 16,500,000 therms of natural gas and 12,500,000 kWh of electricity.

Cost Effectiveness

The anticipated total net present value of economic benefits for the 2018-2022 South Dakota energy efficiency plan is as follows:

Program	Electric	Gas	Total
Program Benefits (NPV)	$701,818	$5,205,495	$5,907,313
Program Costs (NPV)	$413,138	$3,541,459	$3,954,597
Net Economic Benefits (NPV)	$288,680	$1,664,036	$1,952,716
TRC Ratio	1.70	1.47	1.49

Overall, the programs are expected to create net benefits to South Dakota's customers of approximately $2.0 million over the next 30 years. The benefit-cost ratio for the programs is 1.49. That translates to lower energy supply costs of $1.49 for every dollar invested in MidAmerican's energy efficiency programs.

Managing Participation and Budgets

In this filing, MidAmerican provides annual budget estimates for each program based on participation and rebate level estimates for each measure offered in each program. MidAmerican based these estimates on its experience with offering programs in South Dakota, with adjustments for known changes. For any program and any year, participation and spending may vary substantially from the estimates for a variety of reasons beyond MidAmerican's control. Because of this uncertainty, MidAmerican proposes to manage costs for its programs so that by-class, by-service cost recovery factors would not exceed approved levels by more than 10 percent in any plan year. MidAmerican commits to closely monitoring its costs, and will request Commission approval in advance for any cost increases that exceed this amount.

MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Residential Equipment Program

Description of Program

The residential equipment program promotes the purchase of energy efficient equipment by residential customers in new and existing homes. The program provides customers with rebates to offset the higher purchase cost of efficient equipment. Targeted equipment includes heating, cooling, and smart thermostat measures. The program is marketed under the name Residential Equipment Program.

The program is available to all residential customers and landlords for both new and existing buildings in MidAmerican's South Dakota service area. Program measures must save energy supplied directly by MidAmerican.

The target market for this program includes residential customers and landlords of residential customers in existing and new housing. The program also uses tariff rates (those used by residential customers) to target and qualify customers.

Measure List

The Residential Equipment program provides rebates and incentives for the following measures:

Central Air Conditioners
Air Source Heat Pumps
Furnaces
Furnace Fans
Smart Programmable Thermostats

Budgets

Anticipated five-year spending for the Residential Equipment program is as follows:

Electric Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$4,400	$20,038	$24,438
2019	$4,499	$20,038	$24,537
2020	$4,600	$20,038	$24,638
2021	$4,704	$20,038	$24,742
2022	$4,810	$20,038	$24,848
Total	**$23,013**	**$100,190**	**$123,203**

Gas Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$20,800	$483,125	$503,925
2019	$21,268	$483,125	$504,393
2020	$21,747	$483,125	$504,872
2021	$22,236	$483,125	$505,361
2022	$22,736	$483,125	$505,861
Total	**$108,787**	**$2,415,625**	**$2,524,412**

Total Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$25,200	$503,163	$528,363
2019	$25,767	$503,163	$528,930
2020	$26,347	$503,163	$529,510
2021	$26,940	$503,163	$530,103
2022	$27,546	$503,163	$530,709
Total	**$131,800**	**$2,515,815**	**$2,647,615**

Energy Savings

Anticipated savings levels for the Residential Equipment program are as follows:

Electric Savings	Annual kWh	Peak kW
2018	49,010	26.36
2019	49,010	26.36
2020	49,010	26.36
2021	49,010	26.36
2022	49,010	26.36
Total	**245,050**	**131.80**

Gas Savings	Annual Therms	Peak Therms
2018	138,912	2,292.94
2019	138,912	2,292.94
2020	138,912	2,292.94
2021	138,912	2,292.94
2022	138,912	2,292.94
Total	694,560	11,464.70

Cost Effectiveness

Anticipated total net economic benefits of the program are as follows:

Program	Electric	Gas	Total
Program Benefits (NPV)	$281,768	$4,402,820	$4,684,588
Program Costs (NPV)	$157,908	$3,187,212	$3,345,120
Net Economic Benefits (NPV)	$123,860	$1,215,608	$1,339,468
TRC Ratio	1.78	1.38	1.40

Description of Operations

The residential equipment program is delivered in partnership with heating and cooling dealers as well as retail outlets selling qualifying equipment. One program contractor supports the program. The contractor handles application processing, tracking program data, answering questions from dealers and customers, verifying equipment installations and coordinating rebate distribution to customers.

MidAmerican staff provide overall strategic direction for the program, and also conduct research and development, promotion, evaluation and other administrative functions.

Key steps in program participation include:

- Program application – The customer fills out an application to identify the eligible equipment or quality installation along with the associated costs. The customer mails the completed application to the program contractor.

- Equipment qualification – The program contractor determines whether the equipment is eligible for an incentive.

- Quality installation qualification – The program contractor determines whether the installation is eligible for an incentive. The participating dealers need to meet training requirements and follow defined installation protocols.

- Rebate processing and database maintenance – The program implementation contractor and MidAmerican process rebates and maintain the database for tracking and reporting purposes.

- Verification – Where appropriate, the program contractor verifies that equipment installation meets program guidelines.

Marketing Plan

MidAmerican will promote the program through articles that will periodically appear in a quarterly newsletter that is sent with customer bills. The articles will reference the energy efficiency website, which features a dedicated Web page that includes program information and qualification requirements, an online form, and a program brochure. A reference to the energy efficiency website will appear quarterly on customer bills.

MidAmerican call center associates will recommend the program to likely participants and, when appropriate, transfer customers to the program call center operated by the program contractor.

Program referrals are also expected from trade allies. Information will be available on a dedicated portion of the energy efficiency website to assist trade allies in marketing and delivering energy-efficient products and services to customers, while encouraging participation in energy efficiency programs. The website offers trade allies the opportunity to order program materials, learn about program changes, and provide contact information for future communications. To keep trade allies informed and engaged with the program, MidAmerican will periodically email program

information. The website also included access to MidAmerican's 'Find A Trade Ally Partner' tool that connects customers with dealers, installers, contractors, suppliers and design professionals that can help with energy efficiency projects. These trade allies have in-depth program knowledge that helps customers take advantage of MidAmerican Energy's rebates. MidAmerican's Trade Ally Central website provides additional resources for trade ally engagement.

MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Residential Load Management Program

Description of Program

The Residential Load Management program provides financial incentives to residential customers in exchange for allowing MidAmerican to control their central air conditioning on hot summer days when the company is forecasting the possibility of a system peak demand or when operational conditions require use of the program. The program is promoted under the service mark SummerSaver℠. The program reduces the peak demand for electricity by cycling participants' air conditioners during the course of an event.

South Dakota residential electric customers that live in owner-occupied, single-family homes and that have central air-conditioning in good working order are eligible for the program. Certain models of central air conditioners are not compatible with the technology of the program, however, and therefore cannot participate. Also, customers with geothermal heat pumps are not eligible for the program.

Budgets

Anticipated five-year spending for the Residential Load Management program is as follows:

Electric Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$10,000	$7,500	$17,500
2019	$10,225	$7,500	$17,725
2020	$10,455	$7,500	$17,955
2021	$10,690	$7,500	$18,190
2022	$10,931	$7,500	$18,431
Total	**$52,301**	**$37,500**	**$89,801**

Energy Savings

Anticipated savings levels for the Residential Load Management program are as follows:

Electric Savings	Annual kWh	Peak kW
2018	2,288	155
2019	2,288	155
2020	2,288	155
2021	2,288	155
2022	2,288	155
Total	**11,440**	**575**

Cost Effectiveness

Anticipated total net economic benefits of the program are as follows:

Program	Total
Program Benefits	$109,474
Program Costs	$71,504
Net Economic Benefits	$37,970
TRC Ratio	1.53

Description of Operations

Participants agree to allow MidAmerican to control their equipment during the four summer months (June to September). MidAmerican installs a load control receiver (LCR) on participants' houses near their outside disconnect switches and air-conditioning compressors. LCRs operate by overriding customers' thermostats, shutting down the outdoor compressor, but allowing the indoor furnace fan to continue circulating previously cooled indoor air. MidAmerican activates the LCRs through a pager network.

MidAmerican's cycling periods run from 2 to 7 p.m., with randomized programming to minimize impacts on local distribution systems. Actual start time can vary between 2 and 2:30 p.m., with corresponding end times between 7 and 7:30 p.m.

Cycling events have typically occurred up to 3 times per year, although there is no contractual limitation on the number of annual events. The average number of events per year in recent history is eight. Cycling events may be called by MidAmerican's Energy Supply Management Department or the Midcontinent Independent System Operator, Inc. (MISO).

The program is delivered by energy efficiency staff and an administrative program contractor. Energy efficiency staff sets incentive levels, develops marketing materials and coordinate communication among the internal and external staff involved in the program. The program contractor manages customer enrollment and mailings, answers customer questions using a dedicated toll-free phone line, tracks program data, operates program software and hardware systems, and helps coordinate incentives with MidAmerican's billing and accounts payable departments.

MidAmerican's program contractor maintains a network of electrical contractors responsible for installing and removing LCRs on customers' homes. In addition, trade allies providing HVAC maintenance services and those selling HVAC equipment also can influence customers' decisions to participate in the program.

Key steps in the program include:

- Soliciting new program participants through direct mailings to targeted customers,
- Enrolling new participants,
- Coordinating installation of LCRs,

- Managing cycling events during the summer season,
- Servicing and maintaining installed LCRs,
- Processing incentive bill credits through the billing system,
- Informing participants about program operations through targeted mailings and the company Web site,
- Processing customers leaving the program, including removing LCRs (if necessary) and paying partial credits via check, and
- Sending targeted mailings to current participants that move into new homes and also to customers moving into homes of previous participants.

Marketing Plan

MidAmerican solicits new participants in this program through annual mailings targeting the following customers:

- Customers with significant summer electricity purchases indicating air conditioning,
- Customers moving into homes previously enrolled in the program, and
- Customers previously enrolled in the program moving to new homes in MidAmerican's service territory.

MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Appliance Recycling Program

Description of Program

The appliance recycling program offers financial incentives to customers who stop using old, inefficient refrigerators, freezers and room air conditioners and helps them dispose of the old units in an environmentally responsible manner. It provides rebates to customers participating in the program and also provides free pick up and disposal of old appliances. The program is marketed under the name Appliance Recycling Program.

The objectives of this program are to prevent customers who currently use a qualifying appliance from keeping their existing unit when they purchase a new one and to prevent migration of the old unit to the secondary market for used, inefficient appliances in MidAmerican's service territory.

The program primarily targets residential electric customers, but is available to all electric customers recycling residential-sized equipment. Nonresidential expenditures will be tracked in the accounting system separately. Program measures must save energy supplied directly by MidAmerican.

Measure List

The Appliance Recycling program provides rebates and incentives for recycling the following measures:

Refrigerators
Freezers

Budgets

Anticipated five-year spending for the Appliance Recycling program is as follows:

Electric Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$1,800	$2,550	$4,350
2019	$1,841	$2,550	$4,391
2020	$1,882	$2,550	$4,432
2021	$1,924	$2,550	$4,474
2022	$1,968	$2,550	$4,518
Total	**$9,415**	**$12,750**	**$22,165**

Energy Savings:

Anticipated savings levels for the Appliance Recycling program are as follows:

Electric Savings	Annual kWh	Peak kW
2018	14,092	2.05
2019	14,092	2.05
2020	14,092	2.05
2021	14,092	2.05
2022	14,092	2.05
Total	70,460	10.25

Cost Effectiveness:

Anticipated total net economic benefits of the program are as follows:

Program	Electric
Program Benefits	$20,442
Program Costs	$14,709
Net Economic Benefits	$5,733
TRC Ratio	1.39

Description of Operations

MidAmerican will use a program contractor that specializes in recycling appliances to administer and manage a turnkey program. To be eligible for program services and rebates, appliances must be working and, for refrigerators, at least 10 cubic feet in size.

Environmentally responsible disposal involves removing chlorinated fluorocarbons (CFCs) from the refrigerant (and possibly foam insulation), preparing refrigerant for reclamation or recycling, and recycling other materials such as metal (and possibly plastic) components. The program contractor will provide turnkey services to manage and administer the program, including marketing the program, processing applications, tracking program data, answering questions from customers and providing customer and transaction information to MidAmerican for rebate tracking. MidAmerican staff provide overall strategic direction for the program, conduct research and development, and provide promotion, evaluation and other administrative functions.

Key steps in program participation include:

- Appliance pick-up scheduling – The customer calls the program contractor to schedule a pickup, or is transferred by MidAmerican. The customer also may submit an online form to receive a call to schedule pickup.

- Equipment qualification – The program contractor determines whether the equipment is eligible for an incentive.

- Recycling process – The program contractor picks up the appliance, transports the appliance to a recycling facility, recycles applicable components and appropriately disposes of remaining components.

- Tracking appliances – The program contractor maintains documentation to demonstrate that the materials are recycled appropriately.

- Rebate processing and database maintenance – The program contractor and MidAmerican process rebates and maintain the database for tracking and reporting purposes.

Marketing Plan

MidAmerican will promote the program through periodically inserting program information with customer bills. The bill insert will reference the energy efficiency website, which features a dedicated website that includes program information and qualification requirements, an online form to submit contact information to schedule a pickup, and a program brochure. A reference to the energy efficiency website will appear quarterly on customer bills.

Program referrals are expected from retail trade allies. Information will be available on a dedicated portion of the energy efficiency website to assist trade allies in marketing and delivering energy-efficient products and services to customers, while encouraging participation in energy efficiency programs. The website offers trade allies the opportunity to order program materials, learn about program changes, and provide contact information for future communications. To keep trade allies informed and engaged with the program, MidAmerican will periodically email program information and provide point-of-sale information to appliance dealers. MidAmerican's Trade Ally Central website provides additional resources for trade ally engagement.

MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Nonresidential Equipment Program

Description of Program

The Nonresidential Equipment program promotes the purchase of energy efficient equipment by nonresidential customers and promotes the implementation of projects that do not fit into the normal prescriptive incentive structure. The program offers financial incentives to customers installing energy efficient equipment, either for first-time or retrofit installations.

The program is available to all nonresidential customers for both new and existing buildings. Program measures must save energy supplied directly by MidAmerican.

Transportation gas customers with daily metering are ineligible for incentives for gas measures; however, customers with monthly metering under the Monthly Metered Transportation Service gas tariff are eligible for energy efficiency incentives.

Measure List

The Nonresidential Equipment program provides rebates and incentives for the following measures:

Variable Speed Drives
Central Air Conditioners
Natural Gas Furnaces
Natural Gas Boilers
Custom Electric
Custom Gas
LED Lighting

- LED Linear Replacement Lamps
- LED Troffers
- LED Troffer Retrofit
- LED Exterior Fixtures
- LED Linear Ambient Fixtures

Budgets

Anticipated five-year spending for the Nonresidential Equipment program is as follows:

Electric Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$16,500	$7,932	$24,432
2019	$16,871	$7,932	$24,804
2020	$17,251	$7,932	$25,183
2021	$17,639	$7,932	$25,571
2022	$18,036	$7,932	$25,968
Total	**$86,297**	**$39,660**	**$125,957**

Gas Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$3,600	$45,084	$48,684
2019	$3,681	$45,084	$48,765
2020	$3,764	$45,084	$48,848
2021	$3,849	$45,084	$48,933
2022	$3,935	$45,084	$49,019
Total	**$18,829**	**$225,420**	**$244,249**

Total Spending	Administrative Cost	Incentive Cost	Total Cost
2018	$20,100	$53,016	$73,116
2019	$20,552	$53,016	$73,568
2020	$21,015	$53,016	$74,031
2021	$21,488	$53,016	$74,504
2022	$21,971	$53,016	$74,987
Total	$105,126	**$265,080**	**$370,206**

Energy Savings

Anticipated savings levels for the Nonresidential Equipment program are as follows:

Electric Savings	Annual kWh	Peak kW
2018	109,792	18.94
2019	109,792	18.94
2020	109,792	18.94
2021	109,792	18.94
2022	109,792	18.94
Total	**548,960**	**94.70**

Gas Savings	Annual Therms	Peak Therms
2018	27,137	333.81
2019	27,137	333.81
2020	27,137	333.81
2021	27,137	333.81
2022	27,137	333.81
Total	**135,685**	**1,669.05**

Cost Effectiveness

Anticipated total net economic benefits of the program are as follows:

Program	Electric	Gas	Total
Program Benefits (NPV)	$290,134	$802,675	$1,092,809
Program Costs (NPV)	$169,017	$354,247	$523,264
Net Economic Benefits (NPV)	$121,117	$448,428	$569,545
TRC Ratio	1.72	2.27	2.09

Description of Operations

The Nonresidential Equipment program is delivered in partnership with heating and cooling dealers. MidAmerican uses a program contractor to support the program. This contractor is responsible for handling customer calls, reviewing project applications, tracking results and processing customer rebates.

MidAmerican uses two program contractors to help deliver the program. One contractor works directly with customers to help identify the technical information necessary for project evaluation; performs technical analyses of applications to confirm scope, cost and potential energy savings; performs field verification on completed projects; and revises expected annual energy savings from installed projects, if appropriate. The other contractor is responsible for tracking results and processing customer rebates.

MidAmerican staff provides overall strategic direction for the program; calculates cost-effectiveness, payback periods and rebates; conducts research and development and provides promotion, evaluation, and other administrative functions.

Key steps in program participation include:

- Program application – The customer identifies a project and fills out an application to define equipment for project evaluation. Trade allies and/or a key account manager may assist a customer with this step.

- Project qualification – The program contractor determines if the project meets the the measure's minimum efficiency requirement.

- Preapproval – The program implementation contractor sends the customer a project preapproval letter for those projects with an incentive of $10,000 or more.

- Technical assistance – When necessary, the program contractor helps a customer identify the technical information necessary to submit a request for project preapproval.

- Rebate processing and database maintenance – The program implementation contractor and MidAmerican process rebates and enter project information into a database for tracking and reporting purposes.

- Verification – The program implementation contractor field-verifies a percentage of all projects.

- Project evaluation – The program contractor determines project incremental cost and potential energy and capacity savings data.

- Cost effectiveness analysis and rebate calculation – MidAmerican evaluates cost-effectiveness and determines if the project meets program guidelines and qualifies for financial incentives.

- Approval/denial notification – MidAmerican either sends the customer a project approval letter and self-verification form or a denial letter.

Marketing Plan

MidAmerican will promote the program through articles that will periodically appear in a monthly electronic newsletter sent to nonresidential customers as well as a quarterly newsletter that is sent with customer bills. The articles will reference the energy efficiency website, which features a dedicated Web page that includes program information and qualification requirements, application and verification forms, and a program brochure. A reference to the energy efficiency website will appear quarterly on customer bills and monthly in the electronic newsletter.

Key account managers will promote the program to large commercial and industrial customers during routine contacts. Key account managers help assigned customers identify energy efficiency projects and determine whether the projects qualify for prescriptive rebates or if they should be submitted through the custom track of this program.

Program referrals are also expected from trade allies. Information will be available on a dedicated portion of the energy efficiency website to assist trade allies in marketing and delivering energy-efficient products and services to customers, while encouraging participation in energy efficiency programs. The website offers trade allies the opportunity to order program materials, learn about program changes, and provide contact information for future communications. To keep trade allies informed and engaged with the program, MidAmerican will periodically email program information. MidAmerican's Trade Ally Central website provides additional resources for trade ally engagement.

MidAmerican Energy Company
South Dakota Energy Efficiency Plan 2018-2022
Support Functions

Monitoring and Verification Plan

MidAmerican will contract with an independent third-party energy efficiency program evaluator to conduct ongoing analyses of MidAmerican's energy efficiency portfolio across all states it serves. These analyses will consist of both a process review and an impact review of each of MidAmerican's energy efficiency programs. A full analysis of each program will be conducted at least once during the 2018-2022 energy efficiency plans. The contracting process will begin no later than six months after the beginning of the plan.

Process Review

The primary goals of the process reviews will be to provide actionable recommendations to MidAmerican to improve the design and implementation of the Company's energy efficiency programs and to develop a best-in-class evaluation infrastructure for MidAmerican's energy efficiency programs.

Process evaluations will be systematic and transparent. Program evaluations will begin with documentation of current program design and results including successes and challenges. It is anticipated that researchable issues will emerge that will encompass program performance and operations, effectiveness of program marketing collateral and outreach methods, how program marketing and implementation processes can be revised to optimize cost-effectiveness, performance of newly-selected implementation contractors, satisfaction of participants and other market actors, barriers to participation and/or more effective implementation, means for overcoming those barriers, and the effectiveness of the program delivery mechanism.

It is anticipated that the process of making recommendations related to researchable issues will involve interviews with program staff, customers, and market actors. In addition, the third-party process review will include an evaluation of areas that affect all energy efficiency programs (information technology, marketing, and organizational issues). Included in the cross-cutting evaluation will be interviews with trade and customer relations teams, energy efficiency advertising and promotion teams, and the regulatory group.

Impact Review

The primary goals of the impact reviews will be to verify and document reported energy and demand savings associated with the individual programs and each portfolio of programs and to provide additional due diligence to project savings in addition to what is being provided by implementation contractors.

Impact evaluations will be systematic and transparent. The goals of the impact reviews will be to:

- Verify gross ex-ante savings, and
- Estimate net savings

Verification of Gross Savings

Verification of gross savings will involve a review of the savings algorithms and deemed values used by MidAmerican in determining ex-ante savings. This review will include an estimation of the reasonableness of these calculations relative to calculations used in other programs, a review of inputs used in the calculations and verification that these inputs are properly recorded in MidAmerican's tracking systems, and an independent confirmation of savings estimates using simulation modeling, metering analysis, and statistical billing analysis where appropriate depending on the program.

In the case of custom projects, the review can include:

- Review of project description, documentation, and specifications.
- Review of invoices and dates of completion. In many cases, invoices provide the source of the specification via equipment identification, descriptions, and model numbers.
- Review of engineering analyses for technical soundness, appropriate baselines, and appropriateness for the specific application.
- Review of methods for determining demand savings to ensure they are consistent with program and/or utility methods for determining peak load/savings.
- Review of input data for appropriate baseline specifications and variables such as weather data, bin hours, and total annual hours and if they are consistent with facility operation.
- Review of project cost and baseline appropriateness. For example, should incremental costs and incremental savings versus a competing alternative be used or should the total cost of the measure and savings versus the actual old equipment be evaluated?
- Phone interview with the customer to verify the measure has been implemented, hours of use, duty cycle, and make and model of the equipment.
- Phone interview of the contractor or design professional responsible for the implementation to gather additional project specifics and operating characteristics as needed.
- Determination that the measure complies with program rules and is eligible based on payback limits, fuel switching issues, supply side technologies, and minimum equipment performance requirements.

The results of these analyses will yield program and measure realization rates within each program that can be used to estimate gross ex-post savings both proactively and on a forward-looking basis.

Internal Verification of Projects

MidAmerican will conduct verification activities to ensure that measures have been installed across the energy efficiency portfolio. Currently, MidAmerican does 100 percent on-site inspection for all:

- Self-installed equipment (e.g., insulation), and
- Equipment with rebates above $30,000

For other programs/measures, MidAmerican will select a random sample of program participants for verification. Contractors that are new to programs or have had failed past verifications will

receive an oversample of verification visits and these will gradually be reduced (although not eliminated completely) with high compliance rates.

During the site visits, MidAmerican's program contractors verify that the equipment is installed, operating and matches measure characteristics tracked in its Energy Efficiency Management Information System.

Reporting

MidAmerican will conduct analyses of its programs on an annual basis and will report annual results to the Commission. Annual reports will provide the following information:

- Energy and demand electric and gas savings by program and measure within each program on the following bases:
  - Gross ax-ante
  - Gross ex-post (where information is available from impact reviews)
- Comparisons of gross ex-ante savings to plan goals
- Estimated program lifetime savings
- Spending by program and measure within each program
- Comparisons of spending to plan goals
- Cost-effectiveness calculations by program and measure within each program based on the Total Resource Cost test:
  - Load shapes and avoided costs used in the cost-effectiveness analyses will be consistent with those used in the development of this plan.
  - Measure lives and incremental costs will be consistent with information in the measure fact sheets provided in this plan.
  - Calculations will be conducted on a gross ex-ante basis.
- Updated expected spending and gross ex-post savings by program for the upcoming year.
- Calculation of over/under recovery of prior year actual energy efficiency costs through the energy efficiency cost recovery adjustment clause.

MidAmerican will also communicate informally with Commission staff in the event that any changes to the operational details of the programs are needed.

Accounting Plan and Procedures

Accounting Plan

MidAmerican will use specified activities within its accounting system to identify expenditures as energy-efficiency expenditures. Costs will be separated by program, cost category and resource using project numbers, subnumbers and cost elements. The project numbers are used to indicate the energy efficiency program for which the costs are being incurred. Project subnumbers are used to designate the category of costs, such as planning, administration, customer incentives, etc. Cost elements are used to indicate the type of cost such as labor, transportation or non-labor voucher costs.

Using the Oracle Financials code block, employees assign the appropriate energy efficiency code block to time sheets, purchase orders, requests for payment and employee expense reports. Those elements of the code block specifically used to account for energy efficiency expenditures are:

Responsibility Center
The responsibility center identifies the organizational unit within the company that is responsible for the expenditure.

Bill Center
The bill center identifies the business unit for which the cost was incurred. For Delivery business unit energy efficiency expenditures, the bill center is the same as the responsibility center.

Utility Indicator
The utility indicator identifies which utility—electric, gas or common (allocated to gas and electric)—is responsible for the expenditure.

Activity Number
The activity number identifies energy efficiency expenditures. The activity numbers are as follows:

Electric Activities	Description
173172	MEC Electric Recoveries Over/Under
186355	MEC Electric Deferred Expenditures
419007	Interest Income
440011	Electric Residential Revenue
440045	Electric Residential Over/Under Recoveries
442011	Electric Small General Service Revenue
442045	Electric Small General Service Over/Under Recoveries
442211	Electric Large General Service Revenue
442245	Electric Large General Service Over/Under Recoveries
444211	Electric Street Lighting Revenue
444245	Electric Street Lighting Over/Under Recoveries
445011	Electric Public Authorities Revenue
908101	Electric Expense – Embedded
908105	Electric Amortization

Gas Activities	Description
173272	MEC Gas Recoveries Over/Under
186345	MEC Gas Deferred Expenditures
419007	Interest Income
480011	Gas Residential Revenue
480042	Gas Residential Over/Under Recoveries
481011	Gas Commercial Service Revenue
481042	Gas Commercial Over/Under Recoveries
481211	Gas Industrial Service Revenue
481242	Gas Industrial Over/Under Recoveries
489021	Gas Transportation Revenue Monthly Metering
489042	Gas Transportation Over/Under Recoveries
489062	Gas Transportation Revenue Daily Metering
908205	Gas Amortization

Project Number
The project number is used to assign energy-efficiency expenditures to programs. The project numbers used are as follows:

Project Number	Description
17802	Electric Residential Equipment
17805	Electric Nonresidential Equipment
17812	Electric Energy Efficiency Management – Nonresidential Programs
17818	Electric Energy Efficiency Management - Residential Programs
17831	Electric Residential Load Management
17834	Electric Energy Efficiency Management – All Programs
17856	Electric Appliance Recycling – Nonresidential
17857	Electric Appliance Recycling – Residential
98849	Gas Energy Efficiency Management – Residential Programs
98852	Gas Energy Efficiency Management – Nonresidential Programs
98853	Gas Energy Efficiency Management – All Programs
98856	Gas Residential Equipment
98858	Gas Nonresidential Equipment

Project Subnumbers
The general project subnumbers are used to identify the cost category of the expenditure. The general project subnumbers used are as follows. Additional letters or numbers may be added to subnumbers to further segregate costs.

Subnumber	Description
30	Planning and Design
31	Administration
32	Advertising and Promotion
33	Customer Incentives
34	Monitoring and Evaluation
35	Miscellaneous
36	Equipment
37	Installation

Location Code
All energy efficiency expenditures will be accounted for using the South Dakota location code 400.

Cost Elements
Appropriate cost elements will be used to identify the cost type, i.e. labor, transportation, non-labor.

Procedures
Training in appropriate cost assignment will be provided at least annually to all employees charging energy efficiency activities.

Direct Costs
Direct costs are expenditures that can be specifically assigned to individual energy efficiency programs. All employees active in the design, implementation, or evaluation of energy efficiency

programs and related activities shall be trained in the use of the energy efficiency code block and will be instructed to charge all costs, both labor and non-labor, that are incurred in the performance of their energy efficiency assignments to these energy efficiency activities and projects.

Indirect Costs
Indirect costs are costs for various employee benefits and payroll taxes that are directly charged to energy efficiency programs through the use of loading rates. The loading rates are periodically reviewed to determine whether revisions are needed.

Adjustments
Adjustments are amounts ordered by the Commission in prudence reviews. Adjustments will be recognized as an offset to the amount approved for recovery in the deferred debit accounts and also recorded as a non-operating expense.

Recoveries
Energy efficiency expenditures are charged to unique debit activities. When amounts are billed to customers, they will be credited to the appropriate revenue activity through MidAmerican's Customer Service System. Anticipated recoveries will be projected for the 12-month recovery period and as amounts are recovered from customers an entry will be made to record the amount over or under the anticipated recovery to the appropriate activities.

Amortization
The deferred debits for energy efficiency expenditures will be reduced on a monthly basis by the amount of the approved expenditures as they are amortized.