

MidAmerican Energy Company

Residential Low-Income Program Impact and Process Evaluation





6410 Enterprise Lane, Suite 300 | Madison, WI 53719
Tel 608.316.3700 | Fax 608.661.5181

tetrattech.com

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ACKNOWLEDGEMENTS

We would like to acknowledge the many individuals who contributed to this evaluation of MidAmerican's Residential Low-Income program evaluation. This evaluation effort would not have been possible without their help and support.

MidAmerican's Residential Low-Income product manager and energy efficiency director provided substantial counsel and input throughout the evaluation and reporting processes. These individuals participated in on-going evaluation deliverable reviews and discussions, and graciously responded to follow-up questions and documentation requests. We would like to specifically thank Tina Yoder and Erin Rasmussen.

The Tetra Tech team was made up of the following individuals: Sue Hanson of Tetra Tech, and Kimberly Jaeger Johnson, Allison Carlson, Silvia Van Riper, and Laura Schauer of ILLUME Advising.

1.0 EXECUTIVE SUMMARY

MidAmerican Energy Company (MidAmerican) offers energy efficiency programs to their customers throughout their Iowa and Illinois service territories. These programs cover electric and natural gas energy efficiency measures, as well as other services such as the weatherization measures, heating, ventilation, and air conditioning (HVAC) equipment, and appliances provided through the Residential Low-Income program. This report details the activities, results, and recommendations from the evaluation of the Residential Low-Income program. Impact findings are based on program activities from April 1, 2019 through March 31, 2020 in Iowa, and at the Office of Consumer Advocate's request, an add-on assessment of impacts from a new MidAmerican-led effort to distribute LEDs through partnering food banks in Iowa during 2020. Process findings reflect program activities from January 1, 2020 to December 31, 2020 for Iowa and Illinois.¹

1.1 BACKGROUND

The Residential Low-Income program provides financial incentives, energy efficient products, and education to encourage energy efficiency in existing low-income housing. MidAmerican works with service delivery partners to offer the program to customers through separate program components—in Iowa, this includes Supplemental Weatherization, Home Energy Reports, and contributing funding to the Statewide Weatherization program², and in Illinois through Statewide Weatherization and Multifamily Weatherization Partnerships. In addition to, and separately from, GIAC's program efforts, MidAmerican launched a new effort working with food banks in Iowa to distribute LEDs to more customers. This was done in response to lower customer participation rates in regular programming after COVID-19 restrictions were put in place in 2020. At the OCA's request, this evaluation assessed savings from this new effort. More information about the program can be found in section 2.1.

1.2 EVALUATION METHODOLOGY

The evaluation included both impact and process components. The impact evaluation focused mainly on the Iowa Supplemental Weatherization program component, and the process evaluation focused on the Iowa Supplemental Weatherization program component and the Illinois Statewide Weatherization program component. To help guide both evaluation activities, the Tetra Tech team conducted interviews with MidAmerican program staff.

For the impact evaluation, the Tetra Tech team reviewed the Iowa Technical Reference Manual (TRM) Version 4 (PY2020) and the resulting energy savings to ensure tracked savings for the Iowa Supplemental Weatherization program component, including COVID-19 response activities where

¹ Due to legislative changes in Iowa in 2019, MidAmerican refilled their 2019-2023 program plan resulting in a delayed launch of programs in Iowa. Therefore, for Iowa only, the Tetra Tech team assessed program impacts from April 1, 2019 through December 31, 2019 of PY2019 and additionally assessed the first quarter activities of PY2020 (January 1, 2020 through March 31, 2020). Additionally, process evaluation activities extended to December 31, 2020 due to program implementation challenges resulting from COVID-19.

² MidAmerican, along with Black Hills Energy and Interstate Power and Light Company, provides funding to supplement the Iowa Department of Human Rights' existing low-income weatherization program funded by the Federal Weatherization Assistance Program. Program impacts are evaluated annually at the statewide level and reported on by Dalhoff Associates. In Illinois, the Illinois Department of Commerce & Economic Opportunity is the managing agency for the Federal WAP, which is also evaluated at a statewide level. As such, the Tetra Tech team did not evaluate these program components.

LEDs were distributed through food banks, were appropriately calculated³. The Tetra Tech team also reviewed MidAmerican's internal calculators to verify that the algorithms included the most appropriate values. For the process evaluation, the Tetra Tech team assessed program materials and conducted a two-part industry scan, including secondary research and in-depth interviews with staff at other utilities who manage low-income programs.

1.3 SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

Overall, the Tetra Tech team found that the Residential Low-Income Iowa Supplemental Weatherization program component and the Illinois Statewide Weatherization program component have been operating as planned. Based on a review of the Iowa TRM, tracking data analysis, and MidAmerican's internal calculators, the overall Iowa evaluation results in a 100 percent realization rate for kWh, therms, and peak therms, and a 107 percent realization rate for peak kW, including minimal savings adjustments. The tables below show impacts and realization rates, separated by planned Iowa Supplemental Weatherization program activities (Table 1) and food bank LED distribution in response to COVID-19 (Table 2). Based on interviews with program staff, service delivery partners, and the industry scan, the Tetra Tech team found that there may be some opportunities to expand the Iowa Supplemental Weatherization program component and to broaden the overall program design in both Iowa and Illinois.

Table 1. PY2019 and PY2020 Q1 Iowa Supplemental Weatherization Savings Impacts

Impact	Tracked Gross Savings*	Evaluated Gross Realization Rate**	Evaluated Gross Savings	NTG Ratio***	Evaluated Net Savings****
kWh	25,294	100%	25,349	100%	25,349
Peak kW	4.00	101%	4.00	100%	3.75
Therms	(139)	101%	(140)	100%	(140)
Peak Therms	3.00	91%	3.00	100%	2.85

* Tracked savings shown are compiled from tracking data in the file "GIAC Tracker 19-20 program.xlsx" received from MidAmerican on October 6, 2020 and from tracking data in the file "2020 Food Bank_results.xlsx" received from MidAmerican on February 9, 2021. Numbers shown in parentheses are negative values.

** The realization rate is the ratio of evaluated gross savings to claimed gross savings.

*** Given the low-income sector focus, primary NTG activities were not conducted as part of this evaluation. The NTG information is for informational and program design purposes only.

**** Evaluated net savings are derived by multiplying the evaluated gross savings by the NTG ratio.

³ The Tetra Tech team notes that the primary service delivery partner for the Iowa Supplemental Weatherization program ran their program year from approximately September 2019 through August 2020. Program savings were recorded in 2020 and are based on the Iowa TRM V4 (PY2020).

Table 2. PY2020 Iowa Supplemental Weatherization, COVID-19 Response-Food Bank LED Distribution Savings Impacts

Impact	Tracked Gross Savings*	Evaluated Gross Realization Rate**	Evaluated Gross Savings	NTG Ratio***	Evaluated Net Savings****
kWh	2,688,287	100%	2,688,287	100%	2,688,287
Peak kW	310	107%	332.33	100%	332.33
Therms	(49,620)	100%	(49,620)	100%	(49,620)
Peak Therms	(229)	100%	(229)	100%	(229)

* Tracked savings shown are compiled from tracking data in the file “GIAC Tracker 19-20 program.xlsx” received from MidAmerican on October 6, 2020 and from tracking data in the file “2020 Food Bank_results.xlsx” received from MidAmerican on February 9, 2021.

** The realization rate is the ratio of evaluated gross savings to claimed gross savings.

*** Given the low-income sector focus, primary NTG activities were not conducted as part of this evaluation. The NTG information is for informational and program design purposes only.

**** Evaluated net savings are derived by multiplying the evaluated gross savings by the NTG ratio.

Next, the Tetra Tech team presents the key findings from the evaluation and associated recommendations.

Finding #1: The program appropriately applied the Iowa TRM inputs and assumptions to its tracking data, resulting in 100 percent realization rates for most impact savings values.

The Tetra Tech team reviewed how the program applied Iowa TRM inputs to its measures and found that these assumptions were appropriately used in most cases. The Tetra Tech team made minor adjustments and identified an error in the demand savings calculation for LEDs distributed through food banks in response to COVID-19. This resulted in a savings adjustment of an additional 22.36 kW savings overall. As such, the Tetra Tech team applied a realization rate of 100 percent to all measures except kW savings from LEDs distributed at food banks, where a realization rate of 107 percent was applied.

- The LED calculator for the COVID-19 response activities appeared to pull in $WHF_{e_{Cool}}$ (waste heat factor for energy) in the demand savings calculation⁴. The Iowa TRM algorithm uses $WHF_{d_{Cool}}$ (waste heat factor for demand) in the demand savings calculation.
- The current aerator measure calculator uses a custom assumption for counts of people per household based on the number of bedrooms in a home, as reported in the tracking data. This is a valid approach in the Iowa TRM; however, the Iowa TRM recommends using default assumptions for counts of people per household that are based on whether the home is single family or multifamily, when the data is available. The tracking data does include single family or multifamily status. Therefore, the default Iowa TRM values for counts of people per household should be applied.
- The pipe wrap calculator input description for gas water heaters reads “kWh per linear foot.” For gas water heaters, this should be changed to “therm per linear foot.”

Recommendation #1a: Use the Iowa TRM default values for single family and multifamily homes, as reported in the tracking data, to estimate the number of people per household.

⁴ This calculator appears as an image on the worksheet so the formula could not be verified.

Recommendation #1b: Use WHFd_{Cool} (waste heat factor for demand) in the demand savings calculation for LEDs.

Recommendation #1c: Edit the label for the pipe wrap input description for gas water heaters to “therm per linear foot.”

Finding #2: Evaluated program components are operating as planned.

The Tetra Tech team found that Green Iowa AmeriCorps (GIAC) delivered the Iowa Supplemental Weatherization program component services according to plan. Through the evaluation, the Tetra Tech team also confirmed that ProjectNOW delivered the Illinois Statewide Weatherization program component in MidAmerican’s service territory according to plan. Both service delivery partners in each state met the obligations in their agreement with MidAmerican.

Recommendation #2: MidAmerican should continue to provide similar oversight and direction to its service delivery partners.

Finding #3: There are limited opportunities to expand the Iowa Supplemental Weatherization program component offering.

Supplemental Weatherization expansion in Iowa is limited by the capacity of the current service delivery partner, GIAC, and the small pool of potential new service delivery partners. Community Action Partnership (CAP) agencies are the only other potential partner given their low-income services, statewide reach, centralized coordination, and expertise in in-home audits and weatherization services. However, barriers like staff capacity and the CAP agencies’ need for program funds to cover costs above and beyond what Iowa Supplemental Weatherization funding can cover appear challenging to overcome. Opportunities to reach more eligible customers within program guidelines include exploring ways to provide additional support to GIAC, continuing activities such as LED distribution through food banks, and distribution of energy efficiency kits to targeted customers.

Recommendation #3a: Consider collaborating with GIAC to identify ways that MidAmerican could assist in finding new host sites to partner with GIAC.

Recommendation #3b: Continue to leverage partnerships with organizations like food banks to distribute easy to install energy efficiency measures to targeted customers.

Recommendation #3c: Continue to conduct blitz events to distribute energy efficiency kits to targeted customers.

Finding #4: The Iowa Supplemental Weatherization program design could be broadened to include new ways of serving low-income customers.⁵

MidAmerican’s primary goal with the Iowa Supplemental Weatherization program component is to use funds to help its low-income customers on the Statewide Weatherization Program waiting list. In addition to providing these particular low-income customers with in-home energy audits and weatherization services, MidAmerican could help eligible customers by considering new offerings and/or targeting a broader range of customers, as the Tetra Tech team learned that some other utilities do. Opportunities include instituting coupons or vouchers for services like free HVAC system tune-ups or appliance replacement, expanding the program to more non-English speaking customers beyond using the existing Spanish/English program materials, or raising the household income eligibility threshold. However, to be successful, these broader efforts likely require the capacity of service

⁵ Some recommendations for broadening the program design have administrative cost implications.

delivery partners to increase. In the meantime, MidAmerican could consider applying Iowa Supplemental Weatherization funds toward targeted marketing to eligible customers to cross-promote other program offerings like HomeCheck® Online, Appliance Recycling, or other equipment rebates.

Based on research, the Tetra Tech team learned that there are emerging initiatives and trends targeting lower-income populations. Workforce development is one such trend. Investing in targeted workforce development activities could lead to higher levels of job attainment for these populations and result in more people with the capacity to pay their energy bills. While it may not be feasible for MidAmerican to offer workforce development under Iowa's current energy efficiency regulatory environment, the Tetra Tech team wanted to raise the discussion for longer-term thinking and consideration in Iowa.

Recommendation #4a: Consider adding new offerings to the Iowa Supplemental Weatherization program component, including smart thermostats, vouchers or coupons for other services, and online home energy assessments.

Recommendation #4b: Consider targeting a broader range of customers, including raising the household income threshold to 300 percent of the Federal Poverty Line or delivering services in languages other than English.

Recommendation #4c: Consider applying Iowa Supplemental Weatherization program funds toward cross-promotion of other MidAmerican program offerings.

Recommendation #4d: Longer-term, consider how Iowa Supplemental Weatherization funds could support workforce development activities for low-income populations in Iowa.

2.0 INTRODUCTION

This report presents the detailed Residential Low-Income program impact and process evaluation results for PY2019 and the first quarter of 2020 (Q1) for Iowa⁶ and PY2020 for Illinois. The impact evaluation focused mainly on the Iowa Supplemental Weatherization program component. The process evaluation focused on the Iowa Supplemental Weatherization program component and the Illinois Statewide Weatherization program component.

2.1 PROGRAM DESCRIPTION

The Residential Low-Income program provides financial incentives and education to encourage energy efficiency in existing low-income housing through various program components. Across Iowa and Illinois, the program offers the following measures and services:

- Energy assessments (Iowa only through GIAC)
- General repairs in support of successful application of efficiency measures
- Light-emitting diode (LED) bulbs
- Programmable thermostats
- High efficiency natural gas furnaces
- High efficiency central air conditioners (Illinois only)
- Appliances: refrigerators and freezers
- Cleaning and tuning of natural gas furnaces
- Infiltration measures
- Insulation measures

MidAmerican performs an annual review of qualifying measures and may adjust measures and eligibility requirements in the future as market conditions and equipment standards change.

A description of each program component in Iowa and Illinois is provided below.

2.1.1 Iowa

The program is delivered through three separate components in Iowa: 1) Statewide Weatherization; 2) Supplemental Weatherization; and 3) Home Energy Reports (HERs). The Statewide Weatherization component only addresses single family housing, whereas Supplemental Weatherization and HERs are available to both single family and multifamily apartment dwellers.

⁶ Due to legislative changes in Iowa in 2019, MidAmerican refiled their 2019-2023 program plan resulting in a delayed launch of programs in Iowa. Therefore, for Iowa only, the Tetra Tech team assessed program activities from April 1, 2019 through December 31, 2019 of PY2019 and additionally assessed the first quarter activities of PY2020 (January 1, 2020 through March 31, 2020). Additionally, during the Detailed Evaluation Plan process, the Iowa Office of Consumer Advocates requested that the Tetra Tech team assess results for MidAmerican's COVID-19 response activities in Iowa in 2020.

- **Statewide Weatherization**⁷. MidAmerican, along with Black Hills Energy and Interstate Power and Light Company, provides funding to supplement the Iowa Department of Human Rights' (IDHR) existing low-income weatherization program funded by the Federal Weatherization Assistance Program (WAP). The IDHR delivers the statewide program, contracting with local CAP agencies to deliver program services such as energy assessments and direct installation of energy efficiency measures.
- **Supplemental Weatherization**. MidAmerican works with Green Iowa AmeriCorps (GIAC), the service delivery partner in Iowa, to provide services to low-income customers on the WAP waiting list. Services include streamlined energy assessments and direct installation of easy-to-install energy efficiency measures (e.g., LEDs, faucet aerators, low-flow showerheads, pipe wrap, air sealing, water heater temperature setbacks). Services are typically targeted to areas with higher percentages of low-income households eligible for Low Income Home Energy Assistance Program (LIHEAP) services (at or below 175 percent Federal Poverty Line (FPL) and those in higher-need areas, as identified through publicly available census data reflecting zip codes where 65 percent or more of residents live below \$50,000 in annual household income).

Due to COVID-19, MidAmerican suspended its in-home audits and weatherization services provided through the Supplemental Weatherization program. To continue to try to reach its low-income population, MidAmerican launched a partnership with food banks in 2020 to distribute LEDs to eligible customers in targeted areas. MidAmerican also worked with GIAC in 2020 to conduct modified blitz events where eligible customers could sign-up to receive an energy efficiency kit instead of the in-home audit and direct install measures. Kit measures varied depending on customer fuel type and needs and included LEDs, low-flow faucet aerators, low-flow showerheads, water heater pipe insulation, furnace filter whistle, outlet/light switch insulators, rope caulk, and expandable spray foam⁸.

- **Home Energy Reports**⁹. MidAmerican sends HERs to approximately 20,000 customers identified as low-income. Customers chosen for this program component are based on participation in LIHEAP and neighborhood income Census data. The HERs highlight low-cost and no-cost energy efficiency tips and are sent either two or four times per year based on the customer's longevity in the program.

2.1.2 Illinois

The program is delivered through two separate residential components in Illinois: 1) Statewide Weatherization; and 2) Multifamily Weatherization Partnership. Both program components are delivered through local CAP agencies.

- **Statewide Weatherization**¹⁰. MidAmerican provides funding to supplement the CAP agency in MidAmerican's Illinois service territory, Project NOW, for the existing low-income weatherization programs funded by the Federal WAP. The Statewide Weatherization program primarily

⁷ Statewide Weatherization savings are verified annual through the Statewide Low-Income Collaboration Evaluation (SLICE) report and as a result, were not assessed in this evaluation.

⁸ A review of these measures were not included as part of the Tetra Tech team's impact evaluation, but are referenced as part of the process evaluation.

⁹ MidAmerican does not claim savings for the HERs sent to low-income customers. As such, no impact evaluation activities were completed for this program component.

¹⁰ In Illinois, the Statewide Weatherization program is evaluated at a statewide level. As such, the Tetra Tech team did not evaluate this program component.

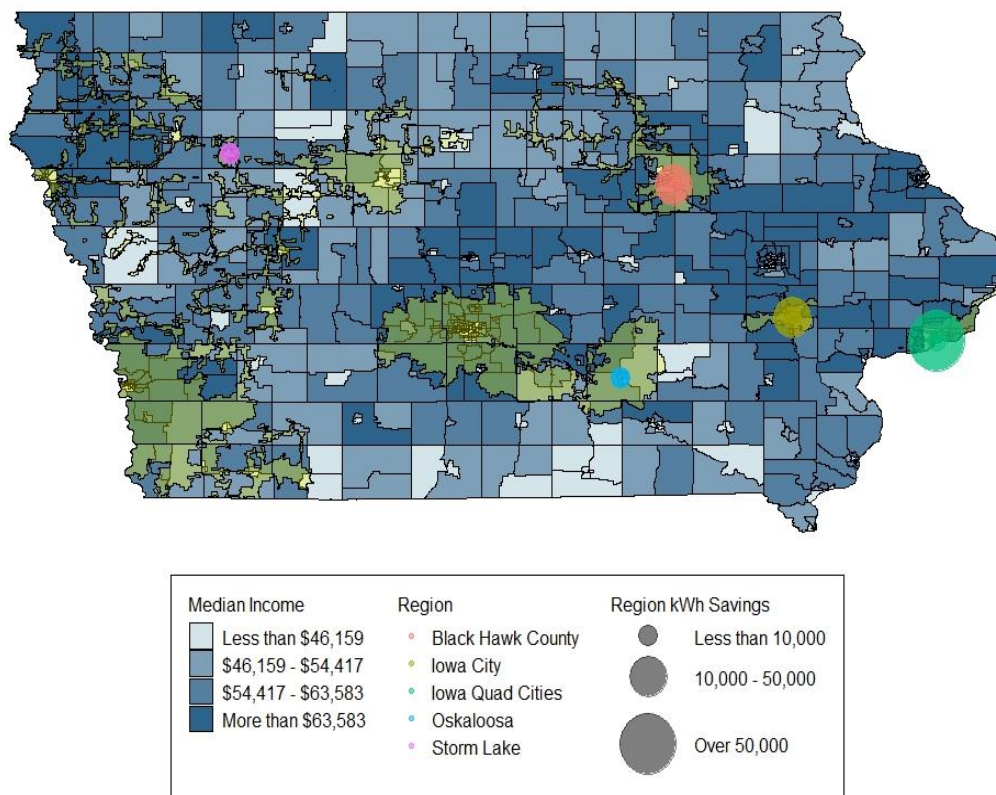
addresses single-family homes. Weatherization services include energy assessments and direct installation of energy efficiency measures delivered by Project NOW. The Illinois Department of Commerce & Economic Opportunity is the managing agency for the Federal WAP.

- **Multifamily Weatherization Partnership.** MidAmerican also provides funding to Project NOW to assist in the weatherization of their agency-owned multifamily units. These units are primarily occupied by lower-income customers that will not qualify for the WAP program due to their rental status. There are over 90 units of affordable CAP-owned housing rentals in the MidAmerican Illinois service territory.

2.1.3 Customer Identification and Reach

To identify targeted customers, MidAmerican leverages LIHEAP participant lists and census data. The Tetra Tech team found that MidAmerican is doing everything it can to identify potential low-income customers—customer identification strategies are appropriate given the data and budget available to MidAmerican. The maps below reflect that MidAmerican’s program design has been effective at reaching the targeted population. The first map¹¹ shows MidAmerican’s service territory (in yellow), correlated with county-level median income information and relative energy savings (kWh) for each region (county or city) targeted by the program.

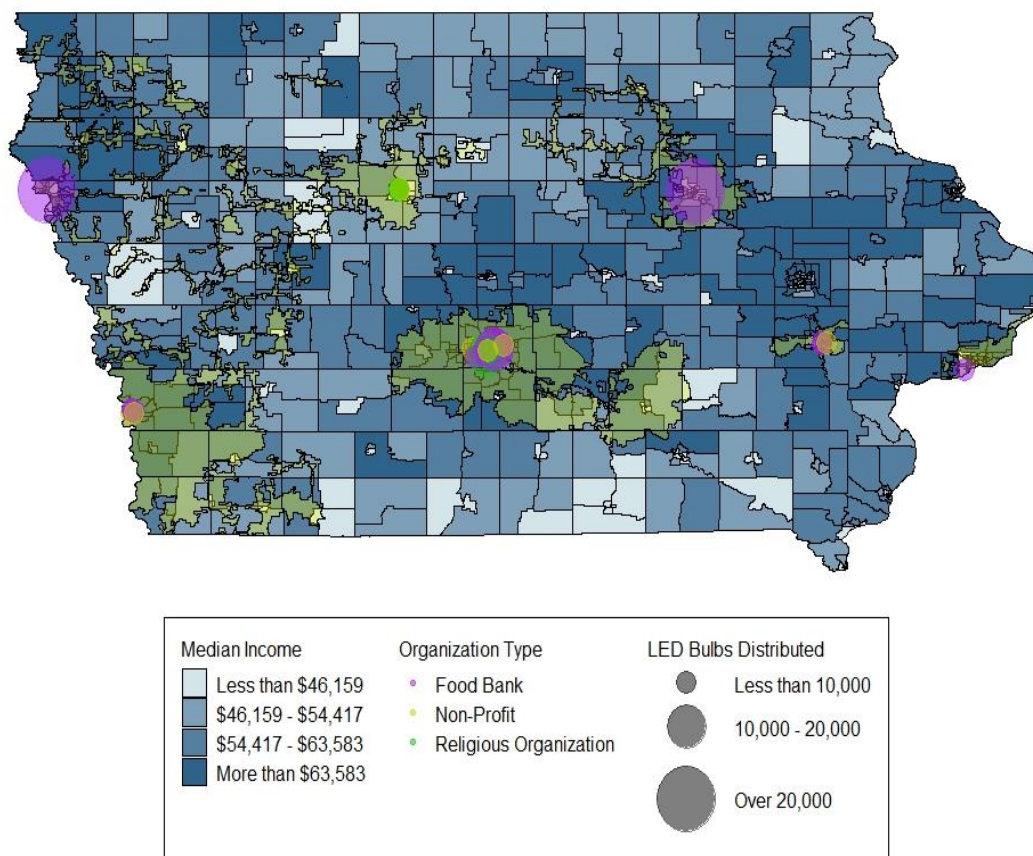
Figure 1. Relative Energy Savings (kWh) by Targeted Region



¹¹ Iowa median income data was sourced from: <https://www.iowadatatcenter.org/data/acs/econ/poverty/ctecon>
 Illinois median income data was sourced from: http://proximityone.com/ustr0509_il.htm
 and: <https://www.census.gov/data/datasets/2018/demo/saie/2018-state-and-county.html>

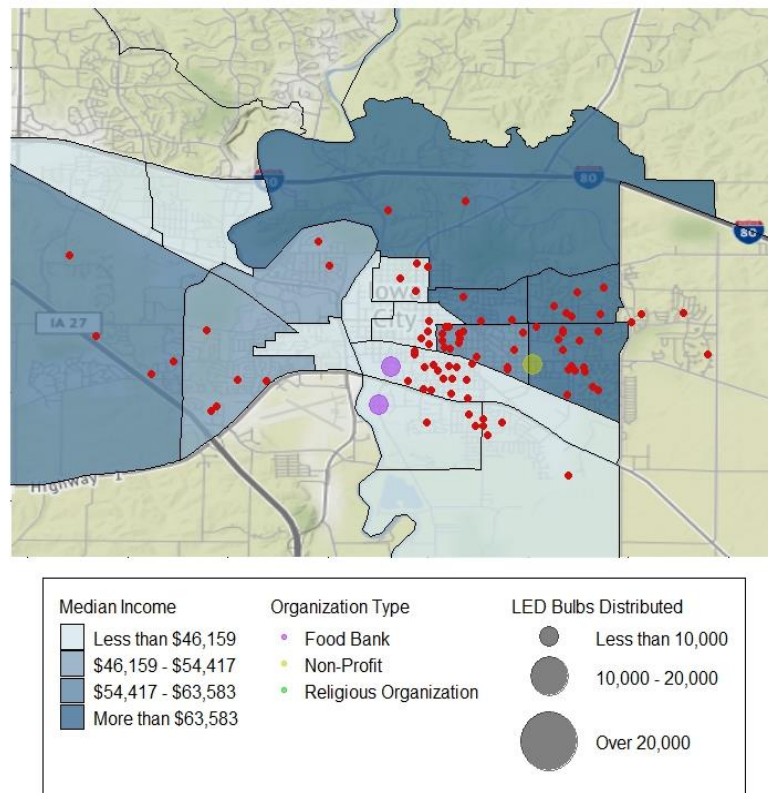
The next map again shows MidAmerican's service territory (in yellow) and county-level median income information. This map shows alignment with the location of kit distribution entities (food banks, non-profits, and religious organizations) targeted by the program and low-income population centers within MidAmerican's service territory.

Figure 2. Kit Distribution Locations Relative to Low-Income Populations



The Tetra Tech team also analyzed participation at a more micro level. As an example, the map below shows MidAmerican's program activities for Iowa City. In particular, the map reflects kit distribution locations (purple and yellow dots, representing food bank and non-profit organizations, respectively) correlated to both median income Census tracts and recent low-income program participants (red dots) that GIAC worked with (from 2019 and early 2020, pre-COVID). By visually mapping program tracking data, we again see that MidAmerican's Residential Low-Income program activities align with lower income populations.

Figure 3. Iowa City Kit Distribution Locations Relative to Recent Low-Income GIAC Program Participants



2.1.4 Summary of Researchable Questions and Evaluation Activities

This section describes the analytic methods and data collection activities implemented as part of the impact and process evaluation of select components of the Residential Low-Income program (Supplemental Weatherization program in Iowa and Statewide Program in Illinois). The Tetra Tech team designed a methodology to address the researchable questions outlined in the program's Detailed Evaluation Plan¹² and addressed other issues that became relevant during the evaluation process. Table 3 outlines the researchable questions.

Table 3. Residential Low-Income Program Researchable Questions

Researchable Questions	Activity to Support the Question
Implementation Challenges	
What are the challenges to implementing the program?	<ul style="list-style-type: none"> • Staff interviews • Service delivery partner interviews
How effective are the service delivery partners? How are they delivering services relative to expectations? Are there other centralized entities, besides CAP agencies, that could be leveraged to help deliver this program?	<ul style="list-style-type: none"> • Staff interviews • Service delivery partner interviews • Industry scan

¹² A select group of Iowa and Illinois stakeholders were provided an opportunity to review and comment on the draft Residential Low-Income program Detailed Evaluation Plan in January of 2021.

Researchable Questions	Activity to Support the Question
How do CAP agencies, both within and outside of MidAmerican's service territory, work to help promote statewide low-income programs that leverage federal WAP funds? Do other utilities have program implementers doing this or internal utility staff?	<ul style="list-style-type: none"> • Industry scan and program staff interviews
How do other, similar programs optimize implementation resources and approaches to reduce administrative costs or other barriers?	<ul style="list-style-type: none"> • Industry scan
Program Administration	
What is the process for data tracking and quality control? Are these activities sufficient and/or could they be improved?	<ul style="list-style-type: none"> • Program staff interviews • Program information review
Program Impacts (Iowa Supplemental Weatherization program only)	
What were the gross savings claimed from the Iowa Supplemental Weatherization component of the program?	<ul style="list-style-type: none"> • Program tracking data
Due to COVID-19, MidAmerican offered additional supplemental weatherization measures outside of GIAC to various food banks. What are the gross savings claimed from these measures?	<ul style="list-style-type: none"> • Review of algorithms/ application of Iowa TRM
What assumptions were used to develop savings estimates for measures offered through the Iowa Supplemental Weatherization program? Are there any updates that should be made?	<ul style="list-style-type: none"> • Program tracking data review • Iowa TRM review • Review of algorithms in MidAmerican's internal savings calculation tools

2.1.5 Detailed Evaluation Activities

Table 4 documents the activities completed as part of this evaluation.

Table 4. Summary of Residential Low-Income Program Evaluation Activities

	Activities
Overarching Evaluation Activities	Program staff interviews: Conducted one in-depth interview with the MidAmerican product manager and energy efficiency director in September 2020.
Impact Evaluation Activities (Iowa Supplemental Weatherization program)	Program tracking data review: Analyzed the tracking database, reported savings, and documentation for consistency. Savings verification. Compared tracked savings values and measure savings calculator inputs to the Iowa TRM.
Process Evaluation Activities	Service delivery partner in-depth interviews: Conducted two in-depth interviews with service delivery partners to understand their experiences with delivering the program across each state. Two-part industry scan: Conducted secondary research on low-income program processes and plans for 10 other utilities. Also conducted interviews with two low-income program staff from other utilities to understand approaches to optimizing implementation resources and learn about new or innovative ideas for programming.

Below, the Tetra Tech team provides more detail about each evaluation activity.

- **Program staff interviews.** On September 18, 2020, Tetra Tech team members interviewed the MidAmerican product manager and energy efficiency director. The Tetra Tech team completed the interview to understand the program design and delivery, discuss program successes and challenges, and identify and prioritize researchable issues for the evaluation.
- **Program tracking data review (Iowa Supplemental Weatherization program only).** MidAmerican referenced the Iowa TRM to determine gross savings for Iowa Supplemental Weatherization measures. The Tetra Tech team used an Excel spreadsheet method that replicated the tracked savings for program measures to confirm accuracy. This analysis allowed for verifying the degree to which MidAmerican correctly used the Iowa TRM and allowed us to assess the level and reasonableness of the information tracked.

The Tetra Tech team reviewed energy savings calculations for engineering fundamentals, appropriateness, and accuracy through this tracking system review. This task is implemented to help identify any potential systematic adjustments that may need to be made to the measure-level savings. To the degree there were variances found in the tracking system data, the evaluation identified those variances and discussed them with MidAmerican during the evaluation process.

- **Service Delivery Partner in-depth interviews.** The Tetra Tech team conducted two in-depth interviews with program service delivery partners (GIAC and Project NOW) to understand their experiences with delivering the program and explore potential barriers to service delivery. Potential barriers discussed included the ability to spend program funds, maintaining qualified staff and volunteers, customer outreach, and reaching customers equitably in all areas of the utility territory (both Iowa and Illinois). Interviews lasted about 30 minutes.
- **Industry scan.** The Tetra Tech team conducted a two-part industry scan to understand how other low-income programs operate and whether any design or delivery approaches could be well-suited for MidAmerican's needs.
 - **Part 1: Secondary research.** The Tetra Tech team conducted secondary research to document 10 other low-income programs. Types of information sought included:
 - Innovative or best practice approaches to streamline or change implementation activities with potentially high administrative burden, such as marketing and outreach strategies, the participant application process, measure deployment and/or installation methods, etc.
 - Measure mix and delivery strategies, specifically where the program offers low- and no-cost measures
 - Published or filed information related to program plans, implementation partnerships, and prior program evaluations
 - **Part 2: In-depth interviews.** The Tetra Tech team interviewed staff who manage low-income programs for two other utility programs to gain a more in-depth understanding of their experiences. Interviews lasted about 30 minutes.

3.0 IOWA PROGRAM SAVINGS AND IMPACT EVALUATION FINDINGS

This section presents the results for the Residential Low-Income program impacts for PY2019 and PY2020 Q1, and as requested, program impacts for the food bank LED distribution effort done in response to COVID-19 in 2020. We designed the impact evaluation around the key researchable questions identified in the methodology section **Error! Reference source not found..** First, we present the program savings and then discuss the tracking, engineering, and data reviews.

3.1 PROGRAM SAVINGS

In this subsection, the Tetra Tech team presents the electric and natural gas energy and demand savings results for the Iowa Supplemental Weatherization program, including the LEDs distributed at food banks in response to COVID-19. The Tetra Tech team received participant tracking data for the Supplemental Weatherization program component from MidAmerican on October 6, 2020¹³. The tracking data file contained 109 records representing 109 unique customer account numbers and included all information requested by the Tetra Tech team. The file contained customer name and address, customer account number, baseline housing values, single family/multifamily, number of stories, heat source, cooling source, hot water heater fuel type, number of bedrooms and bathrooms, pre- and post-blower door test results, number of units installed per measure, delivery date, and electric and gas savings.

The Tetra Tech team received participant tracking data for the food bank LED distribution from MidAmerican on February 9, 2021¹⁴. The tracking data file contained 29 records representing 29 unique food bank sites (not individual customer accounts), and included all information requested by the Tetra Tech team. The file contained agency name and address, the quantity of LED units distributed, shipment date, and electric savings. The table below summarizes the count of unique customers by measure and the total count of measures across all customers.

Table 5. Iowa Supplemental Weatherization Total Number of Customers by Measure

Measure	Quantity	
	Number of Customers	Number of Measures
Standard Measures		
Kitchen Aerator - Dual	1	1
Bathroom Aerator - Dual	3	4
Bathroom Aerator - Electric	1	2
Unknown Location Aerator, SF - Dual	13	13
Unknown Location Aerator, MF - Dual	1	3
Pipe Wrap - Dual	45	127
Pipe Wrap – Electric	1	5
LED - Dual	98	988
LED - Electric	4	26
Air Sealing - Gas Heat with CAC, Dual	17	17
Air Sealing - Gas Heat no CAC, Dual	4	4
Subtotal	109	1,190

¹³ Filename: GIAC Tracker 19-20 program.xlsx.

¹⁴ Filename: 2020 Food Bank_results.xlsx.

Measure	Quantity	
LEDs Distributed through Food Banks in Response to COVID-19	Number of Food Banks	Number of Measures
Food Bank LED - Des Moines, Iowa City, Iowa-Quad Cities, Waterloo, Fort Dodge, and Sioux City	23	130,560
Food Bank LED - Council Bluffs*	6	7,392
Subtotal	29	137,952
Total Count of Unique Customers	138	139,142

* LEDs distributed in the Council Bluffs area were tracked separately because MidAmerican offers electric service only in this area. As such, energy savings were calculated differently (e.g., no gas penalty was applied).

The Tetra Tech team confirmed that MidAmerican followed the Iowa TRM guidance for most savings values through a program tracking data review. Evaluated impact savings resulted in a realization rate of 100 percent to all measures except kW savings, reflecting a realization rate of 107 percent. Table 6 shows tracked and evaluated savings impacts.

The high realization rates for kitchen and bathroom aerators came from adjustments made to savings algorithms where data about the location of tracked unknown aerators was available. The changes to the amount of savings in the kitchen and bathroom aerators were offset by the lower savings calculated for unknown aerators in single family homes with dual fuel sources. While these realization rates seem extreme, the amount of savings they represent is very low compared to the overall savings. As a result, the high realization rates for these measures had no discernable impact on the overall realization rates by savings type. Additional information is provided as part of the tracking data review findings in section 3.2.

Table 6. Iowa Supplemental Weatherization Program Tracked and Evaluated Impacts*

Measure Category	Tracked kWh**	Evaluated kWh	kWh Realization Rate***
Standard Measures			
Bathroom Aerator - Electric	19	74	383%
Pipe Wrap - Dual	8	8.23	100%
Pipe Wrap – Electric	21	20.58	100%
LED - Dual	23,780	23,779.98	100%
LED - Electric	536	535.77	100%
Air Sealing - Gas Heat with CAC	893	893.13	100%
Air Sealing - Gas Heat no CAC	37	36.95	100%
Subtotal	25,294	25,348.39	100%
LEDs Distributed through Food Banks in Response to COVID-19			
Food Bank LED - Des Moines, Iowa City, Iowa-Quad Cities, Waterloo, Fort Dodge, and Sioux City	2,544,238	2,544,238.33	100%
Food Bank LED - Council Bluffs	144,049	144,048.79	100%
Subtotal	2,688,287	2,688,287.12	100%
All Projects	2,713,581	2,713,635.51	100%

Measure Category	Tracked Peak kW**	Evaluated Peak kW	Peak kW Realization Rate***
Standard Measures			
Bathroom Aerator - Electric	0.01	0.03	383%
Pipe Wrap - Dual	0.00	0.00	100%
Pipe Wrap – Electric	0.00	0.00	100%
LED - Dual	3.10	3.10	100%
LED - Electric	0.08	0.08	100%
Air Sealing - Gas Heat with CAC	0.54	0.54	100%
Subtotal	3.73	3.75	101%
LEDs Distributed through Food Banks in Response to COVID-19			
Food Bank LED - Des Moines, Iowa City, Iowa-Quad Cities, Waterloo, Fort Dodge, and Sioux City	293.38	314.52	107%
Food Bank LED - Council Bluffs	16.61	17.81	107%
Subtotal	309.99	332.33	107%
All Projects	313.72	336.08	107%
Measure Category	Tracked Therms**	Evaluated Therms	Therms Realization Rate***
Standard Measures			
Kitchen Aerator – Dual	1	5	383%
Bathroom Aerator - Dual	1	6	511%
Unknown Location Aerator, SF - Dual	44	36	82%
Unknown Location Aerator, MF - Dual	7	7	109%
Pipe Wrap - Dual	25	23	92%
LED - Dual	(522)	(522)	100%
Air Sealing - Gas Heat with CAC	265	265	100%
Air Sealing - Gas Heat no CAC	40	40	100%
Subtotal	(139)	(140)	101%
LEDs Distributed through Food Banks in Response to COVID-19			
Food Bank LED - Des Moines, Iowa City, Iowa-Quad Cities, Waterloo, Fort Dodge, and Sioux City	(49,620)	(49,620)	100%
Subtotal	(49,620)	(49,620)	100%
All Projects	(49,759)	(49,760)	100%

Measure Category	Tracked Peak Therms**	Evaluated Peak Therms	Peak Therms Realization Rate***
Standard Measures			
Kitchen Aerator – Dual	0.00	0.01	383%
Bathroom Aerator - Dual	0.00	0.02	511%
Unknown Location Aerator, SF - Dual	0.12	0.10	82%
Unknown Location Aerator, MF - Dual	0.02	0.02	109%
Pipe Wrap - Dual	0.34	0.07	18%
LED - Dual	(2.41)	(2.41)	100%
Air Sealing - Gas Heat with CAC	4.38	4.38	100%
Air Sealing - Gas Heat no CAC	0.66	0.66	100%
Subtotal	3.12	2.85	91%
LEDs Distributed through Food Banks in Response to COVID-19			
Food Bank LED - Des Moines, Iowa City, Iowa-Quad Cities, Waterloo, Fort Dodge, and Sioux City	(228.66)	(228.67)	100%
Subtotal	(228.66)	(228.66)	100%
All Projects	(225.54)	(225.82)	100%

* Numbers in the table are rounded. As a result, numbers may not calculate exactly in the table.

** Tracked savings shown are from tracking data in the file “GIAC Tracker 19-20 program.xlsx” received from MidAmerican on October 6, 2020 and from the file “2020 Food Bank_results.xlsx” received from MidAmerican on February 9, 2021.

*** The evaluated gross realization rate calculation is the ratio of evaluated gross savings to tracked gross savings.

3.2 PROJECT LEVEL TRACKING DATA REVIEW

As noted earlier, the Tetra Tech team reviewed the tracking data for the Residential Low-Income program, including an overall assessment of data quality and tracking practices and a review of measure savings algorithms for each of the measures included in the Iowa Supplemental Weatherization program, including the COVID-19 response measures. These measures included A19 LED light bulbs, low-flow faucet aerators, low-flow showerheads, water heater setbacks, pipe wrap, air sealing, and programmable thermostats. Specifically, the Tetra Tech team:

- Assessed tracking data for inclusion of key tracking elements needed for savings calculations
- Reviewed the tracking data for data quality issues
- Reviewed measure algorithms and assumptions for reasonableness with industry standard approaches
- Compared the savings calculation to the Iowa TRM V4 for all participants¹⁵
- Reviewed measure algorithms for inadvertent errors

¹⁵ The Tetra Tech team only compared savings calculations to the Iowa TRM V4 (PY2020) and did not separately compare PY2019 savings to the Iowa TRM V3 (PY2019) because the MidAmerican internal savings calculator did not differentiate between PY2019 savings or PY2020 savings.

- Reviewed savings values to confirm that the savings claimed aligned with the savings workbook.

Based on the review, the Tetra Tech team determined that the quality of data was high and included all elements needed for savings calculations. The Tetra Tech team also determined that algorithms, assumptions, and savings calculations for most measures were reasonable compared to industry standards and agreed with the Iowa TRM methodologies. The Tetra Tech team identified a few minor adjustments to the algorithms based on the information available in the tracking data and the options for algorithm values identified in the Iowa TRM.

The table below describes the notable differences between the tracked and evaluated savings assumptions and lists the adjustments the Tetra Tech team made in calculating the evaluated savings amounts.

Table 7. Notable Differences Between Tracked and Evaluated Gross Savings

Measure	Tracked Sources and Assumptions	Evaluated Gross Sources and Assumptions	Primary Reasons for Differences
Kitchen Aerator	Tracked savings were based on the Iowa TRM V4. GPM _{base} and GPM _{low} , people per household, and household type are per Iowa TRM tables. Faucets per household assumed unknown.	Evaluated savings were based on the Iowa TRM V4 and assumed the Iowa TRM default of 1 faucet per household for kitchens and bathrooms, since the use assumption is per faucet.	Difference in faucets per household assumption.
Bathroom Aerator	Tracked savings were based on the Iowa TRM V4. GPM _{base} and GPM _{low} , people per household, and household type are per Iowa TRM tables. Faucets per household assumed unknown.	Evaluated savings were based on the Iowa TRM v4 and assumed the Iowa TRM default of 1 faucet per household for kitchens and bathrooms, since the use assumption is per faucet.	Difference in faucets per household assumption. One dual customer record in the tracking data with a gas water heater did not show any therm or peak therm savings.
Unknown Location Aerator	Tracked savings were based on the Iowa TRM V4. GPM _{base} and GPM _{low} , and household type are per TRM tables. Faucets per household assumed unknown. People per household is custom, based on the number of bedrooms.	Evaluated savings were based on the Iowa TRM V4 and assumed the Iowa TRM default of 1 faucet per household for kitchens and bathrooms, since the use assumption is per faucet. People per household assumed the Iowa TRM default values for single family or multifamily, as reported in the tracking data, to be consistent with other aerator variable assumptions that were single family or multifamily.	Difference in faucets per household and people per household assumptions.
Pipe Wrap	Tracked savings per linear foot were based on the Iowa TRM V4.	Evaluated savings per linear foot were based on the Iowa TRM V4.	One dual customer with a gas water heater was assigned tracked therm savings for both the therm and the peak therm savings, so the tracked peak therm savings were greater than the evaluated savings.
Food Bank LEDs	Tracked savings were based on the Iowa TRM V4. Watts _{base} and Watts _{EE} , hours of use, and WHF _{heat} and WHF _{Cool} are per TRM tables. The tracked savings calculator appeared to pull in WHF _{Cool} (waste heat factor for energy) in the demand savings calculation. (Note: This calculator appeared as an image on the worksheet so the formula could not be verified)	Evaluated savings were based on the Iowa TRM V4. The evaluated calculator pulled in WHF _{dCool} (waste heat factor for demand) in the demand savings calculation, per the Iowa TRM V4.	Difference in the waste heat factor assumption in the demand savings calculation.

The following measures follow the Iowa TRM V4 approach:

- Water heater setback calculator
- Programmable thermostat calculator
- Air sealing calculator
- LED calculator for Supplemental Weatherization program measures

Finally, the pipe wrap calculator input description for gas water heaters reads “*kWh* per linear foot.” For gas water heaters, this should be changed to “*therm* per linear foot.”

4.0 PROCESS EVALUATION FINDINGS

This section presents the findings from the process evaluation activities for Iowa and Illinois. Process evaluation activities involved interviews with program staff, interviews with service delivery staff, a two-part industry scan including secondary research, and interviews with staff who implement low-income programs with other utilities.

Overall, the Tetra Tech team found that the Residential Low-Income program operates as planned in both Iowa and Illinois. Service delivery staffing limitations and geographic reach have been the primary factors involved in not being able to reach more customers in both states. MidAmerican staff recognized the challenge of reaching eligible customers, even with the various program offerings. The evaluation explored opportunities to reach more customers through both the current program design and by adding new program design elements to address this challenge.

4.1 INDUSTRY SCAN

As part of the industry scan, the Tetra Tech team interviewed two staff from other utilities that implement low-income programs to learn about ways that utilities have managed to keep administrative costs low, how they have addressed (or their implementers have addressed) barriers to implementation, and what new or innovative ideas they have had or tried recently. Additionally, the Tetra Tech team identified 10 other utilities that operate similar low-income programs and conducted secondary research to understand how they operate and whether any design or delivery approaches could be well-suited for MidAmerican's needs.

The Tetra Tech team prioritized utilities with program design elements specifically related to supplemental offerings outside of the traditional low-income statewide weatherization programs that typically leverage Federal WAP funds. Utilities were selected based on the following criteria:

- Offering of a dual fuel low-income program
- Geographic region with priority set on Midwestern utilities
- Availability of public information such as filings, annual reports, and other documents that describe how low-income programming works

Other considerations:

- Whether the program was implemented in-house or through contracted implementers
- Whether program services are delivered through a centralized model where one agency oversees service delivery throughout the service area

The table below lists the utilities included in the industry scan in alphabetical order and shows the characteristics of each.

Table 8. Characteristics of Utilities Included in the Industry Scan

Utility / Utility Collaboration	Characteristics				
	Dual Fuel Low-Income Program	Geographic Region	Types of Available Public Information*	Implementation Approach	Centralized Program Delivery Model
MidAmerican	Yes	Midwest	Program plan filing	In-house	Yes, through service delivery partners
Ameren	Yes	Midwest	Program plan filing, impact evaluation report	Contracted out to an Implementer	
ComEd	Electric Only	Midwest	Program plan filing, impact evaluation report	In-house	
Consumers Energy	Electric only	Midwest	Annual report	In-house	
DTE Energy	Yes	Midwest	Annual report	In-house	
Efficiency Vermont	Yes	Northeast	Annual report, program plan filing	In-house	
Idaho Power	Electric only	Northwest	Annual report, integrated resource plan	In-house	Yes, through CAP agencies
Indianapolis Power & Light	Electric only	Midwest	Integrated resource plan, energy efficiency plan summary	Contracted out to an Implementer	
NHSaves	Yes	Northeast	Annual report, Program plan filing	In-house	
MassSave	Yes	Northeast	Annual report, triennial plan	In-house	Yes, through lead agencies (usually CAP agencies)
NYSERDA	Yes	Northeast	Annual report, program plans	In-house	

In the following sections, the Tetra Tech team highlights several insights that emerged from discussions with service providers, along with the industry scan, that may be helpful as MidAmerican considers future program approaches and offerings to increase their reach to low-income populations.

4.2 IOWA INSIGHTS

The Tetra Tech team identified two major barriers to expanding services in Iowa: 1) a need for additional resources; and 2) an inability to identify organizations other than GIAC to leverage for service delivery. These barriers are described in detail below, including opportunities to address them.

4.2.1 Need for Additional Resources

The evaluation found that GIAC delivered services according to plan and met the obligations set out in their agreement with MidAmerican. GIAC delivered the Supplemental Weatherization program primarily through in-home energy audits and weatherization services. According to the GIAC website, these services were provided by trained AmeriCorps volunteers stationed at six Iowa community host sites, listed below¹⁶.

- Center for Energy & Environmental Education, University of Northern Iowa, Cedar Rapids
- Mathew 25, non-profit organization, Cedar Rapids
- Winneshiek Energy District, energy district in Winneshiek County, Decorah
- Greater Des Moines Habitat for Humanity, non-profit organization, Des Moines
- Iowa City Climate Action and Outreach, city government, Iowa City
- Green Dubuque, city of Dubuque, Dubuque

As part of GIAC's services for MidAmerican, they also conducted neighborhood blitz events where trained volunteers traveled to provide in-home audits and weatherization services to other communities outside the reach of partnering volunteer host sites.

GIAC offered two other unrelated AmeriCorps programs where they partner with several other organizations like school districts, public waste agencies, community colleges, and other non-profit organizations. GIAC reported that they partner with a few CAP agencies as well, although these are not listed on the website.

Beginning in mid-March 2020, MidAmerican put the in-home audit and weatherization offering on hold due to COVID-19. To address the resulting reduction in customers' program participation, MidAmerican launched a new partnership with food banks to distribute LED bulbs. Food bank LED distribution occurred in Iowa in November 2020. MidAmerican and GIAC adapted the Supplemental Weatherization offering in Iowa to offer neighborhood blitz events where customers signed-up to receive a weatherization kit instead of an in-home audit with weatherization services. According to MidAmerican and GIAC staff, customers responded quickly and in high numbers to the weatherization kit blitz events¹⁷.

4.2.2 Find Opportunities to Support GIAC

Volunteer staffing constraints and host site recruitment constraints limit GIAC's ability to expand its Supplemental Weatherization program service delivery. However, according to MidAmerican and GIAC staff, GIAC typically meets the requirements of their agreement with MidAmerican. GIAC reported that existing volunteer staff at current host sites typically serve all customers who request program services in a given year; though they reported operating at or near capacity. Should MidAmerican increase marketing and outreach efforts, GIAC would likely be unable to meet the higher demand.

¹⁶ <https://www.greeniowaamericorps.org/locations>

¹⁷ Blitz kit activities occurred outside of the evaluation period for this study. We included qualitative information about the kits based on interviews with MidAmerican staff; however, this study does not include impact-related details about blitz kit activities such as counts of events, customers reached, and services delivered.

GIAC reported that they are responsible for the recruitment of all host sites and volunteers. The number of volunteers GIAC can recruit depends upon the number of host sites participating, as most host sites support up to five volunteers. As an organization, GIAC has the following requirements when selecting host sites for any of their AmeriCorps grant-funded programs:

- Staff available to supervise volunteers
- Host site participation fee, which covers uniforms, background checks, and other operating costs.

For host sites where volunteers conduct Supplemental Weatherization program activities, GIAC has the following requirements:

- Mission alignment, which is the shared vision for providing residential weatherization services without a sense that the Supplemental Weatherization program competes with the host site's service offerings
- Maintaining a technical equipment inventory such as blower door testing system and equipment, safety equipment (gas sniffer, carbon monoxide monitor, etc.), weatherization equipment (caulk guns, weatherstripping, etc.)
- Obtaining transportation vehicles that can transport volunteers and needed equipment to customer service locations.

According to GIAC, these criteria create barriers to participation for some potential host sites. There is a limited number of host sites that meet these criteria and are willing to partner with GIAC. The constraints of the AmeriCorps volunteer grant, which covers much of the administrative volunteer costs, is a complicating factor. The grant amount GIAC can apply for is correlated to the number of host sites they have recruited and can confirm are ready and able to host volunteers. Further, each AmeriCorps grant has a term of three years which slows the overall process of host site recruitment. Without additional host sites, GIAC cannot recruit additional volunteers. Without additional volunteers, GIAC cannot reach and serve more eligible customers.

MidAmerican could coordinate with GIAC to identify ways to assist in finding new host sites to partner with GIAC. For example, perhaps Supplemental Weatherization program funds could cover, or temporarily cover, the host site participation fee as an incentive GIAC could then recruit new sites in targeted areas. Perhaps program funds could cover more training costs, or perhaps funds could be used to help host sites purchase or maintain their technical equipment inventory.

4.2.3 Identify Other Potential Service Delivery Partners

The Tetra Tech team scanned available resources like the 2-1-1 website and implementing agency lists for programs and grants through the Iowa Energy Center and the Iowa Finance Authority to identify other potential Supplemental Weatherization program partners. According to MidAmerican, a partner would need to meet the following requirements:

- Already offer in-home energy audit and weatherization services
- Have a centralized coordination agency that can efficiently manage service delivery administration activities
- Have statewide reach where staff are available in all areas of the state where eligible customers likely reside (especially in areas that GIAC currently does not typically reach)
- Have coverage for legal liability for service delivery staff.

The evaluation also considered the capacity to deliver higher-savings measures like insulation and heating and cooling equipment, which GIAC's program offering does not currently include.

CAP agencies are the most natural means for expanding partnerships to offer the Supplemental Weatherization program. And while a few CAP agencies work with the program through GIAC, as described above, MidAmerican faced barriers recruiting other CAP agencies to support on or deliver supplemental services. The greatest challenge MidAmerican faced was funding; IDHR, who oversees the CAP agencies, required more funding than MidAmerican could offer to cover administrative costs and customer home health and safety repairs.

As an alternative, MidAmerican approached IDHR about the possibility of using Supplemental Weatherization funds to cover higher-savings measures through energy efficiency upgrades to customers who are listed lower on the statewide weatherization waitlist. IDHR and CAP agencies declined this proposal. They prefer to provide the full suite of weatherization services to all customers they serve (rather than limited services to customers lower on the waitlist). MidAmerican's proposal would also require the CAP agencies to hire additional staff, but without a guarantee that Supplemental Weatherization funds would be available in the long term, the CAP agencies were unable to make such staffing changes.

MidAmerican explored other partnership opportunities, including working with Habitat for Humanity. However, the requirement of agencies to cover legal liability for service delivery staff impedes most non-profits and other organizations like faith-based institutions from becoming partners.

4.2.4 Opportunities for Expanding Service and Reach

The Tetra Tech team considered program activities and findings from the industry scan to assess opportunities to expand services and reach to low-income customers through program design enhancements. Below are a few ideas that came out of this research for MidAmerican's consideration.

4.2.4.1 Kits and partnerships with organizations like food banks

The Tetra Tech team learned that administrative activities associated with food bank measure distribution were minimal. This approach did not require any advanced marketing or outreach to customers because the food banks already covered those activities. According to MidAmerican, this approach successfully reached eligible customers, including those in areas that have been harder to reach with Supplemental Weatherization program activities.

Similarly, the blitz events where customers signed-up to receive weatherization kits were successful at reaching customers during COVID-19. MidAmerican was able to work with GIAC to effectively manage the blitzes. GIAC managed most administrative activities for kit distribution via blitz events without needing to add additional host sites to their roster. MidAmerican ran all outreach to customers for blitz events, including postcard outreach to targeted customers identified from MidAmerican's LIHEAP list and those in higher-need areas (based on publicly available census data reflecting zip codes with income levels at or below 65 percent of \$50,000 in household income).

Leveraging these partnerships meant administrative costs associated with measure distribution at food banks and kit distribution during blitz events were relatively low. Further, it allowed MidAmerican to reach customers in different communities. This model may be a good option for optimizing available supplemental funds to reach more customers on an ongoing basis. MidAmerican should continue to leverage partnerships with organizations like food banks to distribute measures to customers and consider blitz events for measure distribution, such as kits.

4.2.4.2 Supplemental measures and activities

The Tetra Tech team identified 10 other utilities that operate similar low-income programs and conducted secondary research to identify any design or delivery approaches that could be well-suited for MidAmerican's needs. Elements of program design specifically related to supplemental offerings outside of the traditional low-income statewide weatherization programs that typically leverage federal WAP funds were prioritized. The evaluation found some of these utilities were actively implementing or planning to implement the following¹⁸:

- Smart thermostat distribution and installation targeting low-income customers, limited time only (Ameren)
- Appliance replacement vouchers for low-income customers who do not qualify for comprehensive program services (refrigerators, freezers, washing machines, air conditioners, dehumidifiers) (IPL/AES Indiana, Efficiency Vermont)
- Free tune-up coupons for electric furnaces, a/c units, or heat pumps (Idaho Power)
- Bill credits through a community solar project subscription (\$5-\$15 dollars/month) (NYSERDA)
- Online home energy assessments, some with kits, specifically targeting low-income customers, to facilitate access to programs and replace or supplement in-home assessments (MassSave, Ameren, IPL/AES Indiana, others)¹⁹

The evaluation also found that some utilities targeted a broader range of customers for their general low-income programming (not limited to supplemental offerings). Where MidAmerican targets customers who are eligible for LIHEAP services (households at or below 175 percent of the FPL in Iowa and 200 percent FPL in Illinois), other states had the following targets:

- Customers with a household income up to 300 percent FPL (Ameren)
- Moderate income households (for example, households with an income between 80 percent and 120 percent of the state median income) (MassSave, Ameren, DTE)
- High-energy users (Efficiency Vermont)
- Non-English customers (MassSave)

4.2.4.3 Workforce Development

The industry scan also highlighted a trend driven by emerging policies as much as utility initiatives: workforce development. These workforce development efforts ranged from education and training to

¹⁸ In discussing these measures with MidAmerican, the Tetra Tech team recognizes that adding these types of measures to this program as currently planned would require additional cost and plan modifications. MidAmerican recognizes these as potential opportunities to expand measure offerings in the next plan.

¹⁹ We note that MidAmerican's Residential Assessment program offers an online home energy assessment with a kit and is open to all customers regardless of income status. We discussed the option of leveraging Supplemental Weatherization program funds to cross-promote and build-off of the Residential Assessment program with MidAmerican. At this time, the Residential Assessment kits have fewer measures than the kits distributed during Supplemental Weatherization program blitz events and cross-promotion of the Residential Assessment program to low-income customers would not serve low-income customers as effectively as distributing the blitz kits with more measures.

intentional diversity hiring through procurement requirements.²⁰ Utilities were able to claim that investing in this targeted workforce development effort led to higher levels of job attainment for these populations, which subsequently led to more people's capacity to pay their energy bills. Workforce development can be challenging to administer and gain approval for as a non-resource initiative; the utilities need to identify and justify costs and savings. Yet, given the recent focus on diversity and equity, it is becoming an emerging topic the Tetra Tech team felt was worth sharing.

There might be an opportunity for MidAmerican to consider using Supplemental Weatherization program funds to support workforce development activities. As described above, GIAC is staff constrained. As examples, funds could cover more training costs for volunteers, including trainer fees, education materials, and Building Performance Institute (BPI) certification fees. While these efforts do not directly equate to energy savings, they benefit the program by increasing participation as needed and provide positive impacts to the communities and lower income population through longer-term impacts.

4.3 ILLINOIS INSIGHTS

Project NOW oversees all low-income program services funded by MidAmerican in Illinois, as they are the only CAP agency in MidAmerican's Illinois service territory. The Tetra Tech team confirmed they deliver the Illinois Statewide program according to plan and met the obligations set out in their agreement with MidAmerican. Further, interviews with both Project NOW and MidAmerican staff reported that the partnership is effective and successful.

4.4 MARKETING FOR STATEWIDE PROGRAMS

Through interviews with MidAmerican staff, service delivery partners, and other utilities, the Tetra Tech team assessed how, if at all, CAP agencies worked to help promote statewide low-income utility programs that are co-supported by Federal WAP funds. The evaluation found that in Iowa and Illinois, customers who qualify for LIHEAP services are automatically put on the program list. No major marketing efforts typically occur either through the CAP agencies or through MidAmerican. This is due to the high demand (high numbers of customer households qualifying for LIHEAP) for Statewide program services. Within MidAmerican's service territory, there typically are more customers eligible for the Statewide program in-home audit and weatherization services than CAP agencies can serve in a given year. In Illinois, however, Project NOW reported that the proportion of customers served through the Statewide program is reasonable given available funds (i.e., MidAmerican or federal dollars) to support staffing and administrative costs. Based on our conversations with MidAmerican staff about their past discussions with IDHR, this is true for Iowa CAP agencies as well.

The evaluation found that other utilities operate similarly and face similar challenges with serving customers with low-income weatherization programs co-supported by Federal WAP funds. In states where there is greater capacity to fund statewide WAP services through additional dollars and/or more service delivery or implementer partnerships, some utilities provide more support with marketing and

²⁰ Workforce development, while an intent of many programs (including low-income programs), is just recently integrating with any level of intentionality within utilities' portfolios. These efforts are more prominent in states such as New York with the New York State Energy Research and Development Authority (NYSERDA), Massachusetts with their newly formed workforce development contract, and California through various initiatives. To that end, there is limited research and evaluation related to the direct impacts of programs on workforce development. Modeled economic analysis (e.g., jobs analysis) is more common, but fairly top down and formulaic, and not a true assessment of workforce development from specific initiatives.

outreach. For example, in Massachusetts, MassSave utilities work with implementing CAP agencies to create and distribute co-branded materials to targeted customers²¹. One utility the Tetra Tech team spoke with reported that the co-branding of both the utility name and the CAP agency name boosts name recognition and program legitimacy among customers.

²¹ Navigant Consulting. (2019). 2017 Income Eligible Process Evaluation Findings (RES 38). Retrieved April 21, 2021: https://ma-eeac.org/wp-content/uploads/RES-38-Income-Eligible-Evaluation-Report_FINAL_7Feb2019.pdf

APPENDIX A: SERVICE DELIVERY PARTNER INTERVIEW GUIDE

MIDAMERICAN ENERGY RESIDENTIAL LOW-INCOME SERVICE DELIVERY PARTNER (GIAC/ProjectNOW) INTERVIEW GUIDE - FINAL

Interviewee(s):

Company Name:

Interviewer(s): Kimberly Jaeger Johnson and Silvia Van Riper, ILLUME

Program: Residential Low-Income Program

Date:

BACKGROUND

This guide will be used to understand the perspectives of Iowa and Illinois implementers of MidAmerican's Residential Low-Income program.

In-depth interviews will be conducted by Illume staff virtually. The interviews will generally be semi-structured. Therefore, the following interview protocol is only a guide to ensure certain topics are covered, but evaluators will follow the flow of the interview and modify questions as needed to fit the interviewee's circumstance. However, some questions have been designed to be specifically followed to ensure consistency.

INTRODUCTION

INT01 Thank you for agreeing to talk to us about your experience with MidAmerican's [Iowa/Illinois] Residential Low-Income program.

This discussion will take about 45 minutes of your time. We would like to talk to you about how the program delivery has been working and what some of the successes and challenges have been.

With your permission, I'd like to record this discussion. This is just for our reporting and note-taking purposes. We will not share information specific to you with anyone outside of our company.

1. Do I have your consent to begin recording? *[BEGIN RECORDING AFTER AGREE TO IT]*
2. Do you have any other questions before I begin?

INT02 Let's start with some background information. *[USE TO BUILD RAPPORT ADD QUICK POSITIVE COMMENTS]*

3. Tell me a bit about yourself and how long you've been with [GIAC/ProjectNOW]?
4. At a high-level, what kinds of programs and services does [GIAC/ProjectNOW] provide?

ADMINISTRATIVE PROCESSES & GOALS

[Throughout the conversation the interviewer will adopt the terms and language that respondents use to describe the tools and recommendations.]

5. How long has [GIAC/ProjectNOW] been working with MidAmerican to offer services through their Residential Low-Income program?
6. [IA only] We understand that GIAC works with community partners that directly provide the weatherization or energy savings services. Does GIAC also provide direct weatherization or energy savings services?
7. What is your team structure around the delivery of this program?
 - a. Who are the key players on your team who help administer this program?
 - b. What are their roles and titles?
 - c. How has your team structure changed, if at all, in the recent past?
8. What targets or goals do you currently have for the program? [PROBE for equitable reach across the state, number of customers served, counts of measures, energy savings, etc.]
 - a. Have your targets changed in the last year or two? How so?
 - b. Are these targets that were set through an agreement with MidAmerican, or are these [GIAC/ProjectNOW] internal targets?
9. Are you on track to meet the targets?
 - a. What strategies have worked well/ helped you meet these targets? [PROBE for outreach, marketing, partnerships with other organizations, contractors, etc.]
 - a. What may keep you from meeting the targets?
10. What is your contractor network like?
 - a. How many full-time/part-time contractors work for the program?
 - b. Has this changed in the recent past?

IMPLEMENTATION PROCESS & SUCCESSES/CHALLENGES

Next, I'd like to talk more specifically about your experience administering the program.

11. What are some of the key administrative tasks that your organization oversees, and how has your experience been managing those responsibilities?
 - a. Which of these tasks are covered by MidAmerican's funding (not the overall Federal WAP program or other funding)?
 - b. What has worked well so far for the program? Why do you think this is?
 - c. What has not worked as well? Why do you think this is?
 - d. If you make one change for any of these tasks, what would it be? What would that look like in practice?
12. How are services coordinated between WAP and the Low-Income program by MidAmerican?
 - a. How are funds administered between the two programs?
 - b. How are services integrated between the two programs?

13. Thinking about the program today, what are some of your main challenges? [PROBE for: outreach, awareness of the program, coordination with MidAmerican, staff problems, spending down budget, contractor network issues, etc.]
 - a. Have you tried any strategies to solve these challenges? What are those?
14. [IF NOT ADDRESSED] How, if at all, does your organization, or others you partner with, support the promotion of both the Federal WAP program and the statewide MidAmerican program? (IL – ProjectNOW is CAP. May not be applicable to IA – GIAC).
15. What support or resources could MidAmerican provide that would help mitigate these challenges?
16. The Residential Low-Income program offers a variety of measures and services.
 - a. What is your assessments and perceptions of how these measures and services are impacting the communities and customers you serve?
 - b. What measures or services do you think should be added to the program? Why is that?
17. In general, do you have any other thoughts about how the program could be improved?

CONCLUSION

18. Those are all the questions we have for you. Is there anything else you would like to share that we haven't asked you about?
19. Thank you for your time today! We really appreciate your insights.

APPENDIX B: UTILITY INTERVIEW GUIDE

MIDAMERICAN ENERGY RESIDENTIAL LOW-INCOME UTILITY INTERVIEW GUIDE - FINAL

Interviewee(s):

Company name:

Interviewer(s): Kimberly Jaeger Johnson and Silvia Van Riper, ILLUME

Program: Residential Low-Income Program

Date:

BACKGROUND

This guide will be used to understand the perspectives of other utilities' experiences with the administration of their low-income programs.

The Tetra Tech team will conduct up to three in-depth interviews with utilities other than MidAmerican as part of an industry scan. We will conduct interviews virtually. The interviews will generally be semi-structured. Therefore, the following interview protocol is only a guide to ensure certain topics are covered, but evaluators will follow the flow of the interview and modify questions as needed to fit the interviewee's circumstance. However, some questions have been designed to be specifically followed to ensure consistency.

We expect the interviews to take 30 minutes. We will schedule interviews with respondents in advance to accommodate each participant's schedule.

INTRODUCTION

INT01 Thank you for agreeing to talk to us about your experiences with [UTILITY]'s residential low-income program [ADJUST NAME AS APPLICABLE FOR EACH UTILITY].

This call will take about 30 minutes. We'll talk about how the program has been working, what some of the successes and challenges have been, and what changes you're considering.

With your permission, I'd like to record this discussion. This is just for our reporting and note-taking purposes and we will not share information specific to you with anyone outside of our company.

1. Do I have your consent to begin recording? [BEGIN RECORDING AFTER AGREE TO IT]
2. Do you have any other questions before I begin?

INT02 Let's start with some background information. [USE TO BUILD RAPPORT ADD QUICK POSITIVE COMMENTS]

3. Tell me a bit about yourself and how long you've been with [UTILITY NAME]?
4. How long have you been involved with the low-income program? What's your role within the program?

5. Is the program implemented in-house by [UTILITY NAME] or through a contracted implementer?

PROGRAM DESIGN AND IMPLEMENTATION

We are interested in hearing about how the program works – administration practices, the implementation process, selecting program measures, etc.

[Specific questions asked may depend on information already accessed via Industry Scan]:

ADMINISTRATION PRACTICES

6. What are the typical tasks involved in administering the program (e.g., budgeting, reporting, implementer scopes of work, etc.)?
7. Who is involved in program administration activities?
8. In your opinion, what about the way administration is done helps keep administrative costs down?
9. [IF APPLICABLE] Do you have any insight into what may help keep administrative costs down for the implementers?

IMPLEMENTATION PROCESS

10. How do program services actually reach customers?
 - [IF APPLICABLE] Who implements the program?
 - Who serves customers (e.g., trade allies, CAP agencies, independent contractors)?
 - Do you work with community organizations like food banks or faith-based institutions to deliver program measures/kits (i.e. energy kits, LED lights, etc.)?
11. What were the drivers behind structuring the program this way? Have you ever considered structuring service delivery differently? Why or why not? [PROBE for limitations to do it differently]
 - Did you implement any changes as a result of COVID-19 last year? What has worked well? Are you considering adopting these changes long-term? Why/Why not?
12. [IF APPLICABLE] What has worked well in terms of working with your implementers? What has been challenging?
13. [IF APPLICABLE] Does the work that your implementers do typically meet your expectations?
14. How do you ensure that the program is accessible to everyone who's eligible within your service area (even the far-reaching corners of harder-to-reach places)? [PROBE for who promotes the program – implementers, IOU, CAPs, all?]
 - [IF APPLICABLE] Do implementers serve small localities (surrounding neighborhoods), regions (several counties), or are they statewide?
 - What challenges have you experienced with making the program accessible to everyone eligible? How have you addressed those?
 - What has worked well? How about in terms of cost? Cost-effectiveness?
15. How long do eligible customers typically wait to get services after they sign up?

- **Do you offer any services targeted to customers lower on the waiting list? If so, tell me about how that process works. [PROBE for special funds allocated to reaching these customers]
16. Are you considering any changes to the program implementation process in the near future?
- [IF YES] What are the changes, and what prompted you to consider them? [PROBE for changes in how the program will work with implementers.]

MEASURES

17. [IF NOT FOUND IN INDUSTRY SCAN OR ALREADY ADDRESSED] What measures are included in the program?
- In-home assessment [PROBE: who performs the assessment?]
 - Direct install measures
 - Weatherization measure
 - Safety measures
 - Education to customers thru HERs or other, etc. [PROBE who implements the HERs or other education]
18. How do you choose which measures are included in the program?
19. What measures have you had the most success with? Why?
20. [IF NOT ALREADY ADDRESSED] Are you currently considering adding or taking away measures to the program?
- [IF YES] What measures? Why is that?

CONCLUSION

21. What do you see as current or future challenges for low-income programs?
22. What new or different strategies have you heard about that may help to overcome these challenges?
- Are you considering implementing some of these trends?
23. What other recent trends have you observed in the design and implementation of low-income programs?
- Are you considering implementing some of these trends?

Those are all the questions we have for you. Is there anything else you would like to share that we haven't asked you about?

Thank you for your time today! We really appreciate your insights.