

2014 Process Evaluation: Multifamily Weatherization

Recommendations and Responses

April 2015

Executive Summary

The low-income Multifamily Weatherization (LIMFWx) DSM product is a comprehensive, whole-facility retrofit program launched in 2009 and implemented since inception by Energy Outreach Colorado (EOC), a non-profit, third-party implementer focused on home energy assistance for low-income Coloradans. The product offers rebates and study funding on a wide variety of high-efficiency natural gas and electric equipment and process improvements benefitting low-income tenants in multi-family buildings.

The process evaluation included benchmarking of four other utility or utility-funded low-income multifamily programs. The full process evaluation is attached to this summary of the Company's responses to the report recommendations.

Evaluation Goals and Recommendations	Xcel Energy (Company) Response
Goals: Increase energy savings opportunities, participation, and satisfaction, and improve post-project feedback.	
1. Improve participant satisfaction and problem resolution. Consider developing a formal quality assurance and control feedback mechanism between EOC and trade allies to ensure that customer concerns and complaints are fully documented and addressed.	The Company will work with EOC to ensure participants have contact information for the appropriate staff at the onset of the project to address questions or concerns that may arise.
2. Research LIMFWx program market potential, particularly outside of Metro Denver. Consider partnering with EOC to explore the degree to which split incentives affect landlords with low-income tenants beyond the Metro area, thus substantiating the potential market size and/or perhaps identifying new areas for program targeting.	The Company will work with EOC to identify and target potential LIMFWx participants outside of Metro Denver, and explore ways to generate interest and participation among building owners, landlords and property managers.
3. Expand marketing tools for trade allies to help promote the program. Consider expanding the LIMFWx marketing toolbox, such as promoting case studies and/or hosting events to showcase recently finished projects to potential participants, and leverage trade allies to actively promote the program.	The Company will work with its internal corporate communications group and EOC to develop case studies, and explore other means of post-project outreach, to promote the program and increase participation.

Trade ally engagement: Strengthen relations with trade partners implementing energy saving measures and processes.

1. Improve implementer's ability to communicate project cost-effectiveness results to trade allies and customers. Consider training EOC staff on cost-effectiveness to increase their ability to communicate with trade allies and customers regarding why some measures do not receive approval.

The Company will work with EOC to communicate the reasons for project/measure rejection to trade allies and customers (building owners, landlords, property managers, etc).

2. Improve trade ally understanding of program participation requirements. Consider hosting an annual meet-and-greet with trade allies to review program participation requirements as well as roles and responsibilities for program engagement.

The Company will collaborate with EOC to communicate core trade ally participation requirements, roles and responsibilities.



COLORADO LOW-INCOME MULTIFAMILY WEATHERIZATION PROGRAM PROCESS EVALUATION

November 2014

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Executive Summary

As part of a multi-program evaluation, Cadmus evaluated Xcel Energy’s Colorado Low-Income Multifamily Weatherization (LIMFW) Program in 2014. The findings from this evaluation—presented in this report—will inform program and implementation staff as they fine-tune the LIMFW Program.

Program Description

Since 2009, the Xcel Energy Colorado LIMFW Program has provided funding to eligible multifamily building owners that install extensive electric and natural gas upgrades in their facilities.¹ From the start, Energy Outreach Colorado (EOC) has provided nearly turnkey implementation services, handling everything from initial customer outreach and marketing to vetting trade allies (installation contractors) and overseeing measure installation and reporting. Xcel Energy engineers provide a critical quality assurance component: reviewing the cost-effectiveness of each recommended measure within a project prior to funding approval and measure installation.

Potential participants (building owners/housing authorities) own buildings where at least 66% of the tenants qualify as low-income. Thus, the majority of tenants have incomes of up to 80% of the local area median and/or qualify for U.S. Department of Energy Weatherization Assistance, as determined by the Colorado Energy Office, local government, or their agencies.

Projects range from four-unit complexes to large, high-rise buildings with 160 or more dwelling units; however, most projects are completed in buildings with about 120 units.

Method

Cadmus relied on primary and secondary data to evaluate the program. The LIMFW Program evaluation was launched on June 16, 2014, with a working session kick-off to discuss and confirm the evaluation goals, clarify basic research and analyses methods, identify data required from Xcel Energy, and finalize the project schedule timeframe. Then Cadmus collected program data through the following research activities, through October 2014:

- Interviewed stakeholders:
 - Xcel Energy² Program staff (n=1): David Hueser, LIMFW Program Manager and Residential Program Team Lead
 - Implementer (EOC) staff (n=2): Luke Ilderton, Director of Energy Efficiency Programs, and Andy Caler, Utility Program Manager³
 - Participant trade allies (n=10)

¹ The measures most commonly reported by the interviewed Trade Allies are listed on page 27.

² Cadmus conducted an informal interview with the Xcel Energy Program Manager, David Hueser, as part of the initial kick-off meeting on June 16, 2014. Staff confirmed further program details through email and team calls.

³ Cadmus conducted a formal interview with EOC staff on July 2, 2014, at the EOC office in Denver, CO.

- Developed a program logic model
- Surveyed participating customers (n=10)
- Benchmarked similar LIMFW programs (n=4)

Evaluation Objectives

In collaboration with the Xcel Energy, Cadmus identified the following process evaluation objectives, shown below by task:

- **Stakeholder Interviews and Logic Model:** Understand the program’s operations and delivery protocols; identify any areas of concern that could impact data collection or analysis.
- **Participant Surveys:** Understand market conditions, customers’ experiences and perceptions about the company’s program.
- **Trade Ally Interviews:** Understand how trade allies interact with the program, their roles and responsibilities, success factors, and areas for improvements.
- **Benchmarking:** Provide context on key performance indicators associated with peer utility companies’ similarly designed programs.

Summary of Key Findings

A summary of key findings for the LIMFW Program are as follows; these are on findings from the four research tasks.

With ample support from EOC staff, participating customers and trade allies have little difficulty in engaging in the LIMFW Program. All of the landlords (nine of nine)⁴ reported that EOC, the trade allies, and Xcel Energy delivered satisfactory support throughout their program participation, and provided the following average satisfaction ratings:

- Xcel Energy overall: 9 out of 10
- LIMFW Program: 8.9 out of 10
- EOC: 9.5 out of 10
- Contractors (trade allies): 9.1 out of 10

In addition, despite limited full-time staff, EOC plays a critical role in moving customers and trade allies through the ten program participation steps, including initial awareness, on-site energy audits, measure approval and installation, and project (rebate) payments. For example, all 10 landlords⁵ report EOC has been helpful, with eight landlords finding EOC very helpful and two finding EOC somewhat helpful, and one specifically citing that EOC, “actually sent people out to visit with all residents at reception parties to tell them how much they would save.”

⁴ The one respondent who became a landlord midway through the program did not answer this question.

⁵ This report refers to surveyed participating customers in the LIMFW Program as landlords.



Furthermore, all 10 trade allies indicated EOC as very supportive and cited no participation barriers. Specifically, trade allies cited EOC’s availability and ability to answer questions and to provide consistent expectations, as well as its professionalism and knowledge of the program processes. Furthermore, through implementation by EOC, the LIMFW Program leveraged outside funding to reach customers and provide them with energy-efficiency measures and education that would not have otherwise been available. See the Stakeholder Interview, Participant Survey, and Benchmarking Chapters for further details.



“...IT FEELS GOOD TO BE PART OF THE PROGRAM...GETTING PAID FOR DOING SOMETHING THAT MATTERS AND IS MEANINGFUL.”

– PARTICIPATING TRADE ALLY

Customers displayed multifaceted motivations for participation. Nearly all landlords cited multiple and intertwined motivations for participating in the Program, often having trouble distinctly identifying one main decision factor. For example, three landlords said saving money was an important factor, stating that money saved could be used for further energy-efficiency improvements or other infrastructure upgrades. See the Participant Survey Chapters for further details.

The program encourages participants to take additional energy-efficient actions. When asked about additional energy-efficient changes outside of the program, four of the 10 landlords noted that more improvements were in progress or already completed. See the Participant Survey Chapters for further details.

Staff made modest changes in the program that enhanced communication and streamlined marketing operations. EOC staff cited two notable changes since the program’s inception in 2009:

1. Increased frequency and clarity in communications between Xcel Energy and EOC.
2. Movement from mass marketing (shortly after the program’s launch) to targeted word-of-mouth networking by EOC staff through affordable housing conferences and personal relationships.

See the Stakeholder Interview Chapter for further details.

Word-of-mouth serves as the primary marketing tactic for generating program awareness. The majority of landlords (eight of 10) first heard about the program from another individual — four of these directly from EOC. In addition, nearly all (nine of 10) trade allies reported first learning about the LIMFW Program from another individual, although only four of these trade allies indicated hearing about the Program first from EOC. See the Trade Ally Interview, Participant Survey Chapters for further details.

Trade allies see the program as a means to increase business. A majority of trade allies (nine of 10) indicated their involvement with the program increased other organizations’ familiarity with their firms,

and this exposure might lead to future projects in addition to those they bid on from EOC. See the Trade Ally Interview Chapter for further details.

Although sufficient numbers of trade allies support measure installation, trade allies may benefit from more clarity regarding requirements, roles, and responsibilities. EOC staff confirmed a sufficient number of trade allies remain available to carry out the program. However, although all 10 trade allies stated EOC's expectations have remained consistent throughout their tenure working in the LIMF Program, none could clearly and completely articulate what was required for their participation. In addition, all trade allies provided slightly different responses regarding how they understood roles and responsibilities for program implementation. See the Trade Ally Interview Chapter for further details.

Trade allies experience limited interactions with program participants. Seven of the 10 participating landlords commented that most communication with the trade allies is "usually done by EOC staff." Only three of the 10 landlords reported that their trade allies spoke with them specifically about the Xcel Energy LIMFW Program. However, nearly all landlords (eight of 10) said that they communicated with their trade allies very often, either daily or weekly during the installation time period. See the Participant Survey and Trade Ally Interview Chapters for further details.

Although trade allies reported no significant challenges in the bidding process, room for improvement remains. Most trade allies (seven of 10) did not offer suggestions for significant changes to the bidding process. However, three wanted to receive more feedback after bids have been accepted or rejected so they can improve their win rates. See the Trade Ally Interview Chapter for further details.

Conclusions and Recommendations

Our evaluation revealed few potential areas for improvement. This section summarizes conclusions drawn from the findings gathered through multiple research activities and provides potential areas Xcel Energy may wish to explore to further refine program operations and/or expand the program's benefits to new areas.

***Conclusion:* Although the program is well designed and well received by participants and trade allies, its reach is relatively limited. If Xcel Energy wishes to increase energy savings opportunities from the LIMF sector and offer program services to a wider population, there may be opportunities to strengthen program protocols, reduce customer participation barriers and reach new audiences.**

Cadmus found that the Xcel Energy LIMFW Program excels in six of the nine areas we benchmarked: staffing, funding, participation eligibility, energy efficiency education, and common program measures and incentives. However, several areas could improve to enhance the program. For example, although EOC oversees each trade ally's work process, there is no formal protocol to allow trade allies to provide ad hoc quality control to customers directly, in the case of complaints or feedback. In addition, EOC staff reported that split incentives affect landlords in rural and mountain areas are more often than landlords



in the Metro area and therefore participate less in the program.⁶ Specifically, staff suggested that, unlike most Metro area buildings (which often use central heating), many rural/mountain multifamily buildings use heating systems in each tenant unit (with bills paid by tenants). Furthermore, although EOC follows best practices in conducting targeted word-of-mouth outreach, room remains to expand compelling marketing tactics. For example, trade allies do not currently receive program marketing materials, yet nine of 10 said they would use such materials to promote the program.

See the Stakeholder Interview, Participant Survey, Trade Ally Interview, and Benchmarking Chapters for further details.

Recommendations:

- Consider developing a formal quality assurance and control feedback mechanism between EOC and trade allies to ensure that customer concerns and complaints are fully documented and addressed.
- Consider partnering with EOC to explore the degree to which split incentives affect landlords with low income tenants beyond the Metro area, thus substantiating the potential market size and/or perhaps identifying new areas for program targeting.
- Consider expanding the LIMFW Program marketing toolbox, such as promoting case studies and/or hosting events to showcase recently finished projects to potential participants, and to leverage trade allies to actively promote the program.

Conclusion: Despite improved communications, the Program could engage EOC staff and trade allies more effectively to explain the program’s rules and protocols and promote its benefits. EOC staff noted improved communications with Xcel Energy and expressed hope that they would continue to work closely to find easy-to-understand methods of communicating the decision-making process, specifically regarding cost-effectiveness, to trade allies as they often communicate project and/or measure rejection to participants.

Trade allies provided mixed signals regarding their understanding of program participation requirements as well as their roles and responsibilities. For example, the interviewed trade allies provided inconsistent requirements for them to participate in the program as well as how they described their roles and responsibilities. In addition, only three of the 10 participating landlords reported that their trade allies spoke with them specifically about the Xcel Energy LIMFW Program and just under half (four of 10) of the surveyed trade allies were uncertain if participants knew about Xcel Energy’s contribution to the program.

See the Stakeholder and Trade Ally Interview and Benchmarking Chapter for further details.

⁶ Split incentive refers to when tenants pay the utility bills their landlords may be less motivated to upgrade equipment.

Recommendations:

- Consider training EOC staff on cost-effectiveness to increase their ability to communicate with trade allies and customers regarding why some measures do not receive approval.
- Consider hosting an annual meet-and-greet with trade allies to review program participation requirements as well as roles and responsibilities for program engagement.

Report Overview

The remainder of this report presents the following four chapters, documenting the results for each research task as well as methods and objectives, as appropriate:

- The **Participant Surveys**
- The **Participant Survey Chapter** presents results from the surveyed 2013 participating customers (i.e., landlord/building manager).
- The **Trade Ally Interview Chapter** presents the results from participating trade allies in program year 2013.
- The **Benchmarking Chapter** provides our findings regarding other relevant LIMF programs and the Xcel Energy LIMFW Program's performance in comparison.
- The **Appendices** include the data collection instruments.



Stakeholder Interviews

As the first step in the 2014 Colorado LIMFW Program process evaluation, Cadmus gathered critical program information during the kick-off meeting, engaged in supplementary communications with Xcel Energy staff, and conducted an in-depth interview with key implementation staff at EOC, the program implementer.⁷ This chapter summarizes findings that resulted from Cadmus' information-gathering process. See Appendix A for program implementer interview guide.

Program Implementation

The LIMFW Program implementation requires the following nine steps, from program outreach to the completed project report.

Step One: Awareness. EOC staff members provide direct outreach efforts and information about the program to potential participants. EOC also trains trade allies to discuss program opportunities with customers. In addition, EOC staff (specifically the Director of Energy Efficiency Programs and Utilities Program Manager) attend numerous affordable housing conferences and meetings to build and maintain trusted relationships with potential participants. When they are ready to upgrade their facilities, they remember EOC and the Xcel Energy program.

Step Two: Grant Application Process. EOC staff provides support via phone and e-mail to interested customers, aiding in completing the necessary paperwork and ensuring their properties' eligibility.

Step Three: Verification, Scoring, and Preliminary Selection. EOC staff review submitted applications and utility data, and select projects based on overall program goals and budgets. If selected, EOC staff will notify applicants of their selection and next steps.

Step Four: Site-Visit and Audit Committee Review. EOC staff conducts an on-site visit of the property to verify eligibility and create a potential measure list and scope of work for the project. Assuming the project is eligible, staff also sets up the energy audit.

Step Five: Energy Audit. EOC staff or Group 14 (a subcontractor) conducts an on-site energy audit of the facility. The auditor identifies potential cost-effective efficiency upgrades, provides the property owner a list of recommended measures with estimated costs, enters recommendations into the audit tool, and then submits them to the Xcel Energy program manager for funding approval. EOC staff members also educate facility managers on project processes and rationales for recommended energy-efficiency upgrades.

⁷ David Hueser was the primary Xcel Staff member who provided program information. Cadmus interviewed two EOC staff members: Luke Ilderton, Director of Energy Efficiency Programs, and Andy Caler, Utility Program Manager at the EOC office in Denver, CO, on July 2, 2014.

Step Six: Project Approval. Xcel Energy engineers assess the project's cost-effectiveness, at both the measure and project levels. Each project must pass a 1.0 Modified Total Resource Cost threshold. The program manager, however, may allow non-cost-effective measures to be included in the project as long as the overall project remains cost-effective. The program manager then sends the list of approved gas and electric measures (depending on the territory's fuel make-up) to EOC. This approval process takes about a week and a half, although larger, more complicated projects may take longer.

Step Seven: Procurement. EOC issues a call (most often by phone) for project bids from existing trade allies in the network, though a contractor new to the program is always welcome to submit a bid. EOC ensures a thorough search for the best trade ally on each project by seeking at least three bids for each specialized service request (i.e. electrical, plumbing, HVAC, insulation, controls). EOC selects trade allies based on the bids' comprehensiveness and cost.

Step Eight: Management of Energy-Efficiency Measure Installation. Through a three-way contract, EOC works with participants and trade allies and acts as the general contractor to oversee the project and coordinate management meetings. Typically, the time from the project's beginning to completion of measure installation requires four to five months. However, "wooing" a potential participant may take much longer.

Step Nine: Completion, Inspection and Payment. EOC staff conducts on-site quality control inspections of each project. As staff noted: "It's beneficial for us because we are the ones getting called [if something goes wrong]... there is documentation, and we are verifying that we are getting what we and Xcel [Energy] are getting paid for." Upon the project's completion, EOC staff submits a project report that includes: the name of the participating organization; the main contact for the project; the measures installed; actual costs; funding provided by Xcel Energy and other leveraged funding; estimated savings; and an invoice. The Xcel Energy program manager then approves the invoice and pays the project funding to EOC. Project funding can range from \$2,000 to \$500,000, but most often ranges from \$100,000 to \$150,000.

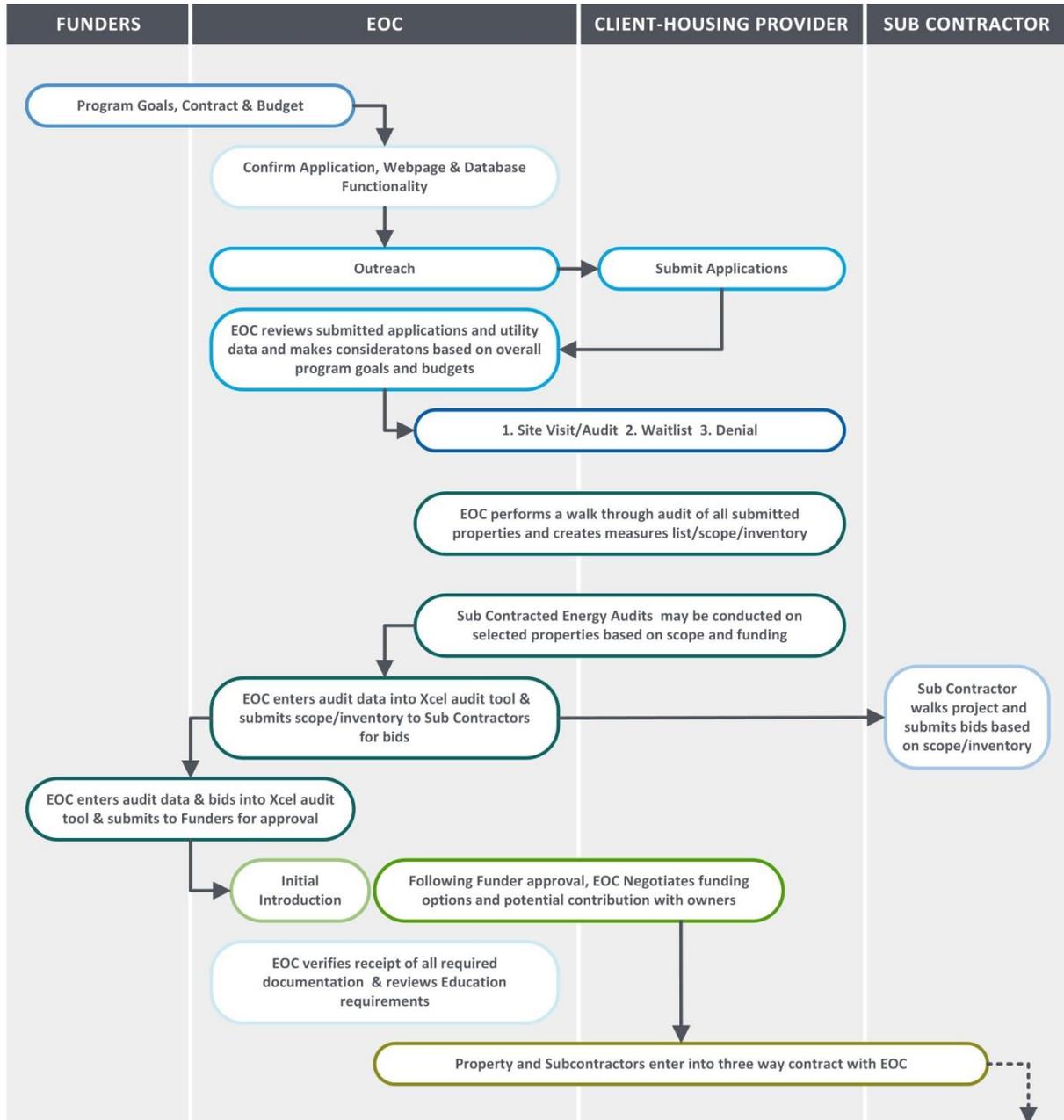
Step Ten: Education. Following step nine, EOC staff reaches out to building managers/owners to provide tenant and community education regarding the building improvements, energy-efficiency topics, and opportunities for additional energy savings. Staff work with children and youth in the building, and make presentations at tenant building meetings to promote behavior changes that can result in increased efficiency. EOC staff members conduct educational efforts following project completion, providing on-site presentations and discussions at tenant meetings. Approximately 30% to 40% of the educational staff time and 25% of administrative staff are dedicated to the Xcel Energy program.

EOC staff performs internal quality control on invoicing, payouts to trade allies, and reimbursement payments from Xcel Energy. If errors occur, EOC staff work closely with Xcel Energy to ensure correction in a timely manner. As a non-profit, EOC undergoes annual audits and diligently maintains spotless record keeping.

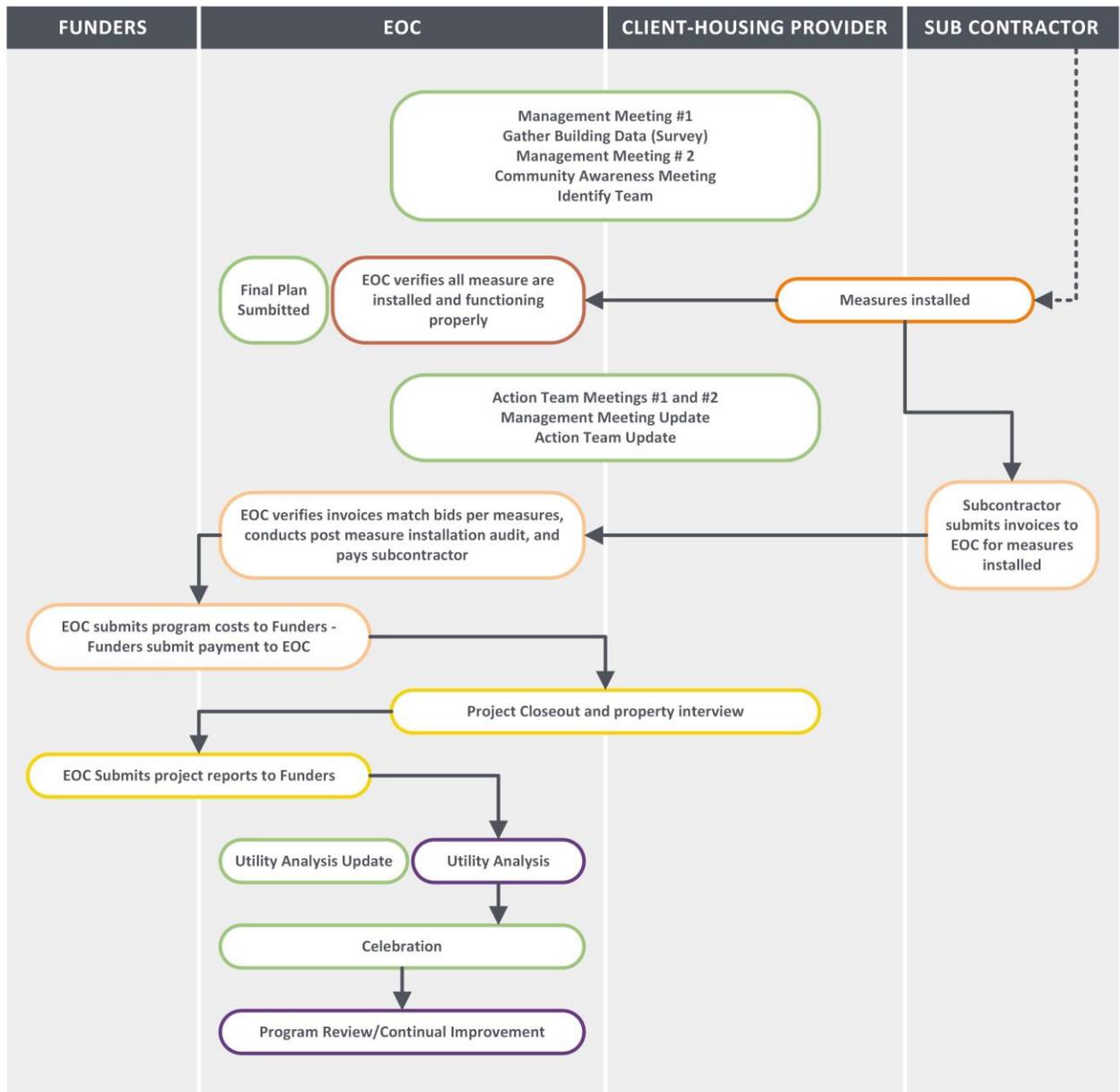
Process Flow

The process flow diagram shown in Figure 1 illustrates the LIMFW Program’s process and execution. EOC developed the process flow diagram.

Figure 1. LIMFW Process Flow



- Budget
- In House Admin Audit
- App Mgmt
- Notification
- Procurement
- Audit
- Education
- Negotiation
- Contracting
- Inspections
- Installs/Change Orders
- Invoicing
- Reporting
- Evaluation



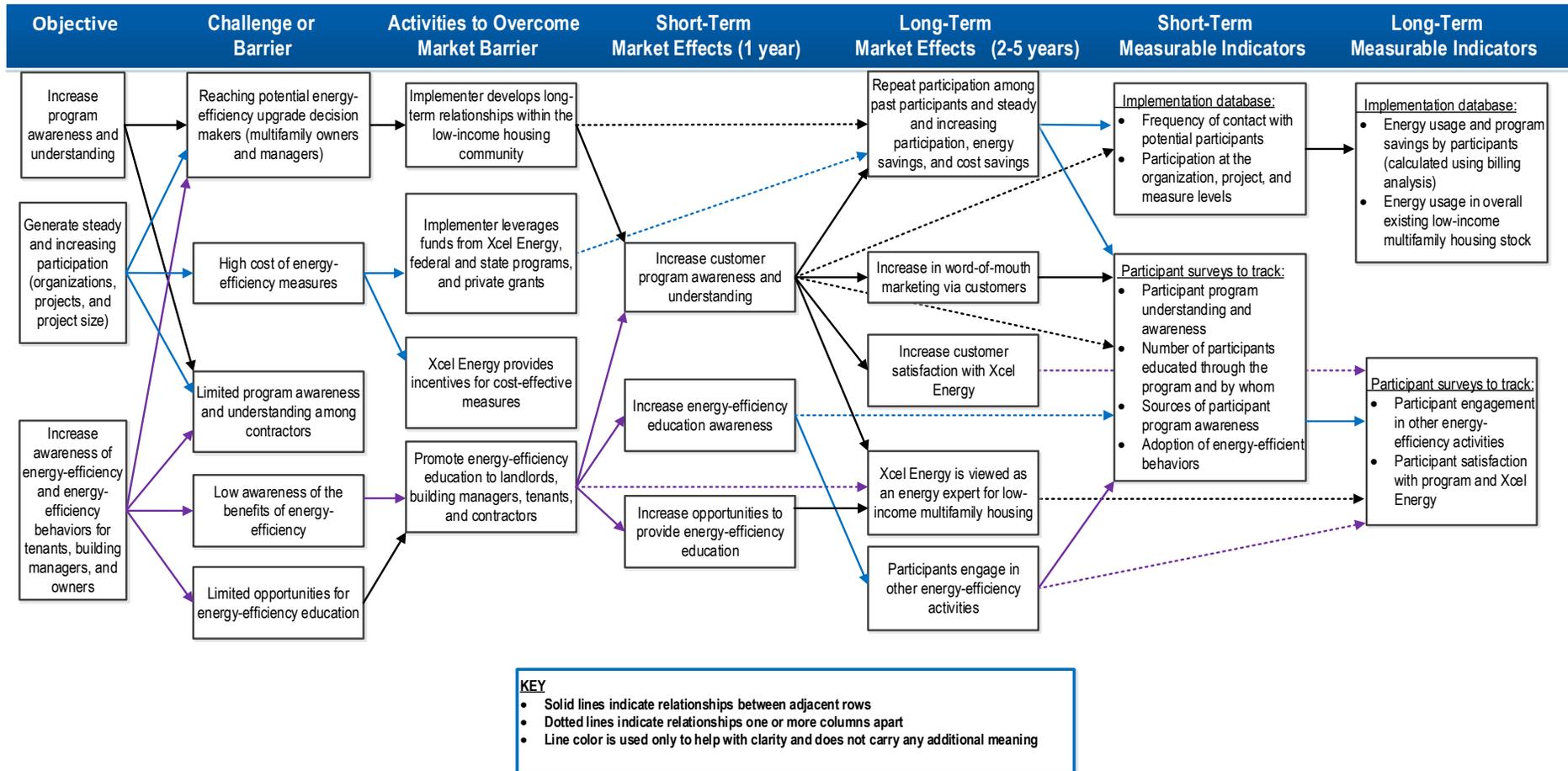
- Budget
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- Reporting
- Evaluation



Program Logic Model

Figure 2 illustrates the LIMFW Program objectives, challenges, activities to overcome challenges, short and long-term market effects.

Figure 2. Program Logic Model



Program Goals and Objectives

EOC staff discussed the LIMFW Program’s primary goal as keeping Xcel Energy customers energy bills manageable and to make sure affordable housing stays affordable. EOC staff noted that the low-income housing sector customers often overlook high-efficiency options and frequently make replacement decisions during crisis situations, where the owners/building managers choose the quickest and least costly equipment and installation options.

As the program offers substantial funding for approved projects, owners incur little or no direct costs. In addition to funding from Xcel Energy, EOC leverages funding from other Colorado utilities, the Colorado Energy Office, federal, county and city programs, and private grants; these revenue streams provide a deep reservoir of funds that cover up to 100% of the cost of each approved project. EOC staff reported, however, “without funding from Xcel (Energy) the projects would not be possible.”

EOC staff have achieved program goals by effectively reaching the target audience through direct outreach (primarily word-of-mouth), attending affordable housing conferences, educating trade allies about the program, and maintaining strong ties within the community.

In 2013, 15 participating organizations completed 30 projects (4,897 units) for a total of 1,756,953 customer kWh and 10,115 dekatherms savings.⁸ The majority of these savings came from the installation of low-cost measures, such as aerators, showerheads, and compact fluorescent lamps (CFLs). Although EOC reaches out to potential participants throughout Xcel Energy’s Colorado territory, most participation occurs in the Front Range (specifically, Denver Metro) due to the many public housing entities located in this area. In addition, most Metro area buildings use central heating systems, unlike buildings in more rural areas, which often have heating systems in each tenant unit (with bills paid by tenants). Consequently, landlords in rural areas participate less due to the split incentive.

Annual budgets and participation projections derive from historical achievement and have increased as the program continues to hit its targets. EOC staff acknowledged, however, that the program now requires a larger number of participants than in the past to garner equivalent cost-effective natural gas savings. This primarily results from decreases in natural gas costs, which have dramatically affected natural gas measures’ cost-effectiveness.

Roles and Responsibilities

Luke Ilderton, EOC Director of Energy Efficiency Programs, and Andy Caler, the LIMFW Utility Program Manager at EOC, handle a great majority of implementation duties for the program. Each dedicates over 50% of their time to the Xcel Energy LIMFW program. Their duties include:

- Outreach to potential participants;
- Assisting interested customers in completing the application process;
- Conducting all initial site visits and most preliminary energy audits;

⁸ Luke Ilderton provided the participation and savings results.



- Working closely with Xcel Energy engineers who assess the cost-effectiveness of each project;
- Putting each project out to bid;
- Vetting bids;
- Conducting on-site energy audits of the building to identify potential cost-effective upgrades, provide a list of recommended measures with estimated costs, and submitting recommendations to Xcel Energy for funding approval.
- Acting as the general contractor in each three-way contract between EOC, trade allies, and participants;
- Conducting on-site quality assurance for measure installations; and
- Reporting each project's completion to the Xcel Energy LIMFW program manager.

Furthermore, several EOC staff members provide administrative support, specifically data tracking and internal quality assurance, and one staff member oversees residential engagement.

Following a comprehensive audit by a qualified multifamily housing energy assessor, EOC issues a request for bids on each project and consistently works with six or seven trade allies from each of the major trades (e.g., heating, ventilation, and air conditioning; water heating; insulation; and controls) as well as with service providers for windows and low-cost, direct-installation measures (e.g., faucet aerators, showerheads, CFLs). The winning trade ally work closely with EOC and participants to install the recommended measures. Throughout the project's duration, the EOC program manager communicates extensively with the trade ally by phone, e-mail, and in-person. In addition, he maintains relationships with participating customers, ensuring they understand, and remain engaged with the process. EOC staff also develops and maintains ongoing personal relationships with trade allies, ensuring they remain up-to-date on program requirements.

As needed, the Xcel Energy LIMFW program manager provides strategic guidance to EOC. EOC staff indicated they maintain regular communications with Xcel Energy staff through e-mail, phone, and in-person meetings. In addition, they have started meeting with Xcel Energy engineers to increase their own understanding of how the engineers analyze cost-effectiveness for each project. This proves critical, as EOC staff must communicate analysis outcomes to customers when projects or measures failing to achieve cost-effectiveness are disallowed.

EOC staff reported the program currently receives sufficient resources (e.g., staff, trade allies, and budget) to provide adequate support for achieving LIMFW Program goals.

Participation Challenges and Barriers

Ensuring low-income facility owners/managers know of the LIMFW program before their facilities are in need of upgrades remains the program's greatest participation challenge. EOC staff members strive to address this challenge by maintaining long-term relationships with potential participants and by tracking

potential projects so that, when a building owner/manager becomes ready to engage, they will reach out to EOC staff for support to achieve the highest energy efficiency possible.

Neither the Xcel Energy nor EOC staff reported substantial issues or customer complaints regarding the program. As EOC staff noted: “The biggest complaint is the waiting. We [EOC] are not instant –there is no prescriptive rebate available. But we tell them [participants] it’s worth the wait.” A handful of trade allies, however, have become “burned out” after submitting a number of bids that Xcel Energy engineers determined were not cost-effective and getting back limited information as to why it was determined. Despite this, EOC staff confirmed a sufficient number of trade allies remain available to carry out the program successfully.

Program Changes

EOC staff cited two notable changes since the program’s inception in 2009. The first (and largest) change addressed communication between Xcel Energy and EOC staff. In the program’s initial years, the “approval process was over the phone, informal, [and there was] limited information on cost-effectiveness.” After the current Xcel Energy program manager assumed the position, communication greatly improved. When evaluating a building, EOC staff members now generally know which measures are feasible, what the corresponding rebates might be, and where to leverage additional funding.

The second change occurred in marketing. The program employed mass marketing shortly after its launch, but EOC staff quickly realized word-of-mouth, affordable housing conferences, and personal relationships offered the best way to reach the target audience.

Future Program Development

Overall, EOC staff anticipates a successful future for the LIMFW program. The one area EOC staff mentioned they could support continued improvement was increasing the effectiveness of communications with trade allies and participants when projects or measures fail to prove cost-effective. EOC staff noted that continuing to work closely with Xcel Energy staff to find easy-to-understand methods of communicating the decision-making process, could help reduce the number of disappointed participants and/or trade allies due to project or measure rejection.



Participant Surveys

As a part of the Xcel Energy Colorado LIMFW Program process evaluation, Cadmus surveyed 10 of the 15 individuals who represent buildings and/or organizations that participated during 2013. These individuals oversaw 23 of the 30 completed projects in 2013. See Appendix B for survey instrument.

Objective

The objective of this survey effort was to provide Xcel Energy with feedback from 2013 program participants, providing insight into areas of success as well as aspects to refine as the program moves forward. The survey included the following topics for investigation:

- Program awareness
- Motivation for program participation
- Program experience
 - Application process
 - Project timeline
 - EOC⁹
 - Contact with trade allies
 - Recommended and installed measures
- Program barriers
- Program satisfaction

Methodology

Cadmus first developed the survey to assess participant feedback for the areas outlined in the Objective section of this memo. Next, we worked with Xcel Energy and EOC staff to obtain the complete list of 2013 program participants. We conducted the surveys over three weeks in September 2014, attempting at least three times to reach each participant. As stated above, we completed interviews with 10 of the 15 participants.

All respondents were either landlords or building managers for the participating low-income multifamily housing properties, and nine of 10 confirmed they are the primary decision-maker in their organization. For purposes of this memo, we refer to participants as landlords; however, one respondent had only become the landlord mid-way through the program, and therefore could not answer all the survey questions.¹⁰

⁹ EOC was the 2013 program implementer.

¹⁰ This memo specifies whether the sample size is n=9 or n=10 for each question.

Detailed Findings

The following outlines results from Cadmus’ surveys with landlords regarding their program awareness, participation motivation, program experience, barriers, and satisfaction.

Program Awareness

The majority of participants (eight of 10) first heard about the program from another individual, specifically:

- Four heard from EOC staff
- Two heard from a co-worker or colleague
- Two heard from the Colorado Housing and Finance Authority

The remaining two landlords could not remember where they first learned about the Xcel Energy LIMFW Program.

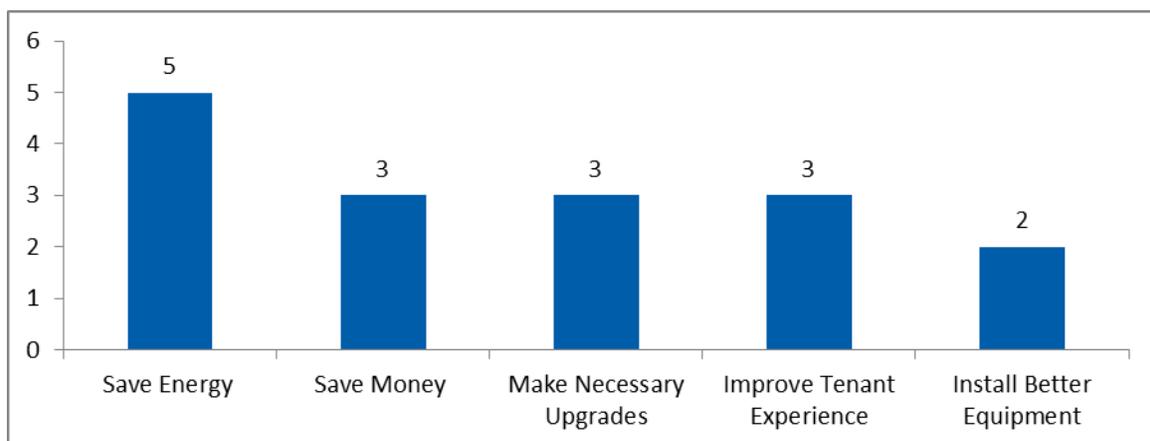
Five of the 10 landlords reported participating in other Xcel Energy offerings, including the Non-Profit Energy Efficiency and Energy Design Assistance programs. These five landlords also mentioned participating in a light bulb phase out program, a weatherization program, and several rebate programs; however, they could not remember the program names.

Motivation for Program Participation

Nearly all landlords cited multiple and intertwined motivations for participating in the Xcel Energy LIMFW Program, often having trouble distinctly identifying one main decision factor. For example, three landlords expressed that saving money was an important factor, stating that the money saved could be used for further energy efficiency improvements or other infrastructure upgrades.

Overall, saving energy was the most common motivation for program participation (see Figure 3).

Figure 3. Factors in Decision to Participate



Source: Survey Question C3. What would you say was the most important factor prompting your decision to participate in the program? (n=10) Multiple responses permitted.



Program Experience

Cadmus asked landlords about their program experiences specifically related to the application process, project timelines, engagement with EOC, contact with trade allies, and the recommended and installed program measures.

Application Process

Most landlords (seven of nine) said the program eligibility requirements were easy to understand.¹¹ Five landlords additionally stated that the application process was easy to understand, while three found it somewhat challenging.

When asked to elaborate on what was challenging about the application process, one landlord explained that it was difficult to get building managers to fill out the application because they found it complicated. Another landlord indicated that once he figured out how to report energy usage from individual units, the application was easy to fill out, but that the “challenge is when we have separately metered units [and we] have to try to get info[rmation] from each one.” The third landlord that found the application process challenging said it was time-consuming, but also noted he had a large number of properties to cover.

Project Timeline

While all landlords (10 of 10) reported that projects differed tremendously in complexity and scale, taking from three to six months from start to finish, a typical project follows the basic timeline shown in Figure 4.

Figure 4. Typical Project Timeline



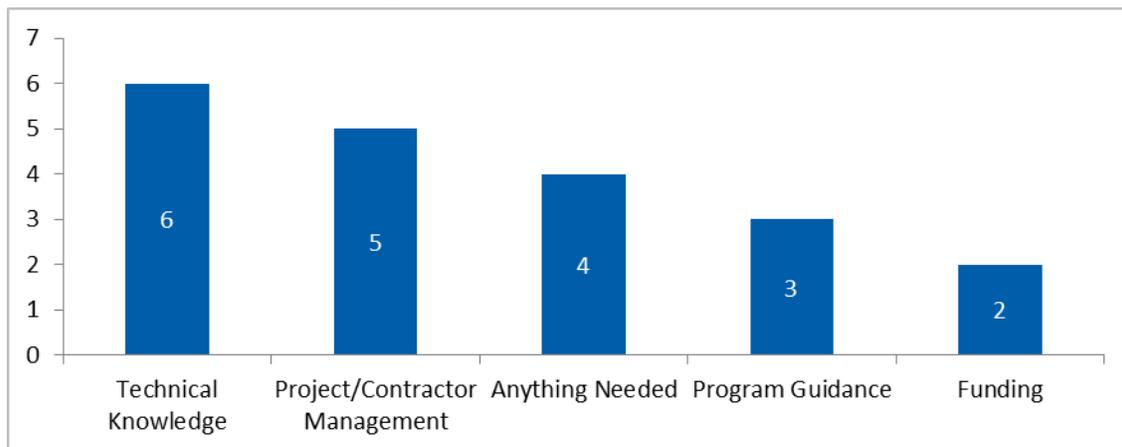
This timeline is extended for very large projects. For example, two landlords had very large projects (e.g., 14 individual buildings) that took up to a year to finish. However, each building was completed within the typical three to six month timeframe.

Engagement with EOC

When asked about EOC’s role in the Xcel Energy LIMFW Program, six of 10 landlords cited EOC’s technical knowledge as the main type of support, and five of 10 cited EOC as the contractor manager. See Figure 5 for the type of EOC support mentioned.

¹¹ The one respondent who had become a landlord mid-way through the program did not answer this question.

Figure 5. Support Provided by EOC



Source: Survey Question F3. What type of support did Energy Outreach Colorado provide you with? (n=10) Multiple responses permitted.

One landlord elaborated that EOC “filled out the paperwork, managed resources, kept us up-to-date, provided general guidance, and provided information to the maintenance guy...One of our biggest issues was scheduling work around our tenants’ schedules because this building houses people with disabilities, so there were lots of restrictions and challenges that had to be met and they [EOC] made it seamless.”

When asked if EOC had been “very helpful, somewhat helpful, not very helpful, or not at all helpful” during the process, all 10 landlords expressed that EOC had been helpful, with eight landlords saying EOC was very helpful and two saying EOC was somewhat helpful. One landlord also mentioned that EOC’s energy education was very helpful, specifically citing that EOC “actually sent people out to visit with all residents at reception parties to tell them how much they would save.” Another landlord reported EOC was “hands-on and provided lots of information.”

All seven of the landlords who were present for their building’s energy audit said that the on-site auditors were very knowledgeable.¹² The majority of landlords also found the audit report to be helpful, with five of nine reporting it was very helpful, and three finding it somewhat helpful. Only one landlord indicated that the audit report was not at all helpful. When asked for further information, this landlord said the report content was too technical, then clarified that while the audit report had not been helpful to him, his maintenance people found it very helpful.

Several landlords indicated wanting more information on topics such as how Xcel Energy arrived at the savings listed in the audit report, with one stating: “I need more information on how long the device should last and how much you [the building] will save.”

¹² Three landlords were not present for the energy audit.



Contact with Trade Allies (Installation Contractors)

The surveyed landlords reported overseeing between one and 11 project sites, with up to 14 separate buildings per site. With this variation, the number of trade allies and level of involvement also varied greatly. The landlords reported working with between one and 10 trade allies, with most reporting three to four per project. These trade allies had a variety of specialties, such as lighting, HVAC, windows, air conditioning, insulation, electrical, and plumbing.

Nearly all landlords (eight of 10) said that they communicated with their trade allies very often, either daily or weekly during the installation time period. Only one landlord did not remember his interactions with the trade allies who installed his recommended measures. While the remaining landlord reported he had not communicated very often with the trade allies, he was still pleased because “they [the trade allies] talked to EOC and also trained building staff on system operation.”

Only three of the 10 landlords reported that their trade allies had talked with them specifically about the Xcel Energy LIMFW Program. Seven of the 10 landlords commented that most program specific communication with the trade allies is “usually done by EOC staff.” However, eight of the 10 landlords said they had received mechanical or warranty information from their trade allies

Recommended and Installed Measures

Seven of the 10 landlords reported that the initial auditor gave them some indication of which measures were likely to be approved for installation by Xcel Energy. These measures included boilers, water heating measures, furnaces, and lighting. The remaining three landlords said they either had not discussed the possible measures with the auditor or did not find out which measures were approved until after Xcel Energy had reviewed the scope of work.

The majority of landlords (eight of 10) noted that in addition to receiving information about approved measures, the auditor also informed them of measures deemed not cost-effective. The most common non-cost-effective measure auditors mentioned was windows, in addition to stoves, air conditioners, doors, exterior lights, and an insulating shell.

All 10 of the landlords reported they had completed all of the recommendations provided in the program energy audit. We confirmed this by matching their responses to the measures listed in the Xcel Energy/EOC database.

When asked about additional energy-efficient changes outside of the program, four of the 10 landlords noted that more improvements were in progress or already completed. Two of those landlords installed entry and storm doors and one conducted “some additional energy-efficient lighting and started replacing any appliances with energy-efficient ones, which is a big change for the facility manager because it is easier to consistently order the same thing and only need to have parts for one model.” The fourth landlord who mentioned additional energy-efficient changes noted that he plans to install low-flow showerheads and possibly make some other energy-efficient improvements.

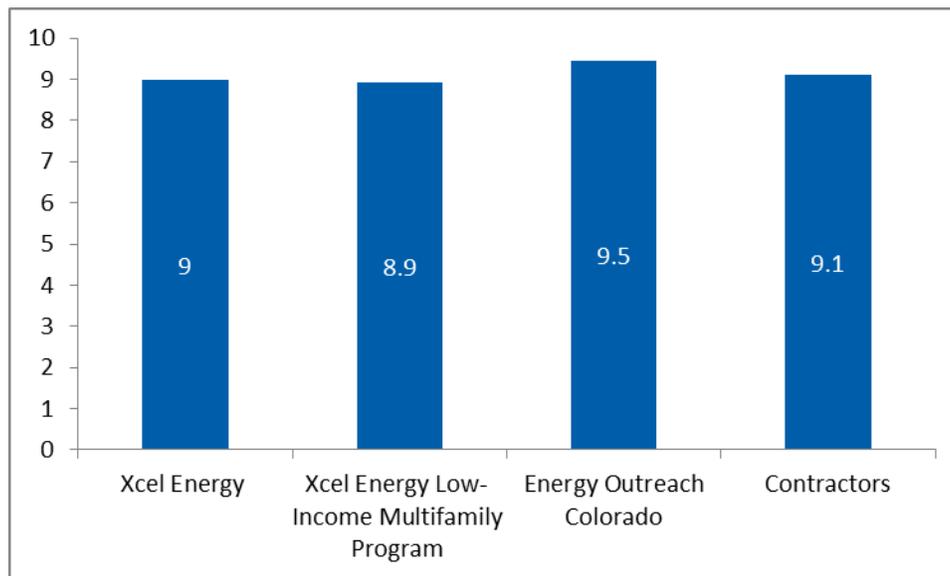
Program Barriers

All of the landlords (nine of nine)¹³ reported that EOC, trade allies, and Xcel Energy provided adequate support throughout their program participation. None of the landlords cited participation barriers to the LIMFW Program.

Program Satisfaction

Overall, the surveyed landlords reported high satisfaction with all aspects of the program. See Figure 6 for the average satisfaction ratings.

Figure 6. Average Satisfaction Ratings*



Source: Survey Questions G1, G3, G5, and G7. “On a scale of 0 to 10, where ‘0’ indicates you are not at all satisfied and ‘10’ indicates you are completely satisfied, how would you rate your satisfaction with....?” (n=10)

*The Contractors in Figure 6 are the trade allies who install the recommended program measures.

Even though the LIMFW Program itself received the lowest rating, at 8.9 overall, this rating is still high, and the other ratings reveal appreciation for the collaborative effort to support and implement the program between Xcel Energy, EOC, and the trade allies. One landlord commented, “we love them [Xcel Energy].” Another stated that the trade ally “really went above and beyond. Our refrigerator guy not only hauled them [the new refrigerators] up three flights of stairs, but in the end he recycled the old fridges too.”

¹³ The one respondent who had become a landlord mid-way through the program did not answer this question.



Several landlords commented on the importance of LIMFW Program overall:

- “I hope they [Xcel Energy] continue to support the program. It [the program] helps the affordable housing world so much. Money is a tough thing to have here, it helps non-profits like ours to keep residents happy and comfortable.”
- “This program makes the world of difference. We serve low-income and special needs and every dollar matters and the program makes a real difference, and a world of difference for these folks. Your programs make a difference!”
- “It a worthwhile program, especially for these kinds of residents—and for budgeting purposes it is very helpful for freeing up money for other improvements.”

After completing surveys with 10 of the 15 individual landlords that participated during the 2013 program year, we did not identify any areas of dissatisfaction or suggestions for improvement.

Trade Ally Interviews

As part of the Colorado LIMFW Program process evaluation, Cadmus conducted in-depth interviews with participating trade allies. This chapter our findings and highlights several possible additional research areas. See Appendix C for survey instrument.

Objectives

The objectives of the trade ally interviews were to:

- Ascertain the background including program awareness, roles, and responsibilities of participating trade allies;
- Identify trade ally motivations and barriers to participation;
- Determine amount of program support provided to trade allies;
- Understand program delivery from the trade allies’ point-of-view;
- Understand program communications; and
- Identify successes and opportunities for program improvement.

Methodology

Cadmus conducted in-depth interviews with the primary trade allies in the LIMFW Program during July and August, 2014. We reached 10 of the 12 trade allies, and completed all 10 interviews. We conducted these interviews by telephone, using the interview guide we prepared (see Appendix C). EOC provided contact information for all the trade allies.

Detailed Findings

Background, Roles, and Responsibilities

Participating trade allies come from a variety of professional backgrounds; they include specialists in HVAC, electrical and lighting, construction management, insulation, and a nonprofit (see Table 1). Trade allies reported a wide range of time working in the industry, from five to over 34 years.

Table 1. Trade Ally Breakdown

Services Provided	Number of Trade Allies
HVAC	4
General Contractors	2
Electrical	2
Insulation	1
Non-Profit*	1
Total	10

*Mile High Youth Corps

Half of the trade allies (five of 10) indicated they had participated since the beginning of the Xcel Energy LIMFW Program (2009). However, two of those five reported participation before 2009. EOC did run a



similar program prior to the launch of the 2009 Xcel Energy program; therefore it is possible these trade allies did not clearly distinguish between the Xcel Energy-sponsored program and prior offerings. Table 2 provides additional details.

Table 2. Background Information on Interviewed Trade Allies

Industry	Area Served	Interview Date	Years in Industry	Years Involved with LIMFW Program	Participation in Other Energy-Efficiency Programs
Construction Manager	Denver Metro	07/28/14	12+ years	4 years	Yes
Electrical	Central-South Colorado	07/30/14	17+ years	4 years	Yes
Electrical	East Colorado	08/01/14	21+ years	3 years	Yes
General Contractor	Denver Metro	07/30/14	NP*	2 years	Yes
HVAC	Denver Metro	08/04/14	NP*	6 years**	No
HVAC	Denver Metro	07/29/14	15+ years	5 years	No
HVAC	Denver Metro	07/29/14	25+ years	5 years	Yes
HVAC	North-Central Colorado	08/05/14	34+ years	5 years	No
Insulation	Denver Metro	07/31/14	20+ years	3 years	Yes
Technical Training	Denver Metro	08/08/14	NP*	8 years**	Yes

* NP = not provided

** The number of years does not necessarily reflect years in the Xcel Energy program, as these trade allies may have been referencing a prior program offering.

Trade Allies most commonly reported that they follow at least one of the following requirements to participate in the program:

1. Fill out a participation application;
2. Provide qualification credentials, insurance, and contacts to EOC;
3. Follow pertinent business laws (OSHA, insurance, etc.); and
4. Have a clean work history and background.

Once accepted into the program, trade allies described their roles and responsibilities for program implementation in a variety of ways, including:

- Provide EOC with a cost estimate for the project scope of work;
- Deliver client energy-efficiency education (e.g., how to maintain equipment);
- Install energy-efficient measures that benefit clients;

- Provide EOC with the appropriate documentation, measure specifications, and pricing breakout for the associated rebates; and
- Adhere to EOC’s scope of work and quality assurance standards.

All 10 of the trade allies stated that the expectations from EOC have remained consistent throughout their tenure working in the LIMFW Program.

Other Program Participation

As shown in Table 2, the majority of the trade allies (seven of 10) reported being involved in energy-efficiency programs outside of the Xcel Energy LIMFW Program. Specific programs mentioned include:

- Arapahoe County Weatherization;
- Pueblo County Weatherization;
- Other energy-efficiency programs from Xcel Energy; and
- Other EOC programs (e.g., emergency home furnace repair, home weatherization, Nonprofit Energy Efficiency Program).

Awareness

Trade Allies first learned about the LIMFW Program through a wide variety of sources:

- Four heard about the program directly from EOC or Group 14, EOC’s subcontractor.
- Four reported hearing about the program from another word-of-mouth source:
 - County program staff
 - Property owner
 - Xcel Energy staff
 - Colorado Energy Office staff
- One reported that his company was already involved in the program when hired by EOC.
- One reported that he learned about the program from the newspaper.

Participation Benefits and Drawbacks

A majority of trade allies (nine of 10) reported primarily participating in the program to increase their business activity. Specifically, trade allies indicated that their involvement with the program has increased other organizations’ familiarity with their firms and this exposure might lead to future projects, in addition to the ones they bid on from EOC. As one trade ally stated, “...it’s another (job) opportunity, (and) now EOC keeps me informed when something comes up.”

One trade ally reported that a benefit of participation is that other organizations now contact his company frequently because they have a reputation for being involved in “...these types (utility sponsored) of energy-efficiency programs.”



Nearly half of the trade allies (four of 10) stated that there were no drawbacks to participating in the program. However, four trade allies mentioned the following two areas for improvement:

- Either streamline the paperwork or make the application process more intuitive.
- Reduce the rebate processing turnaround time. One trade ally reported that projects can be quite costly and rebate payments can take more than 60 days after installation.

Program Support

All 10 trade allies evaluated EOC as being very supportive. Specifically, trade allies mentioned EOC’s availability and ability to answer questions and provide consistent expectations, as well as their professionalism and knowledge of the program processes. One trade ally summed up the support by stating that EOC addresses “...issues right away. I’m surprised if an issue falls through the cracks.”

Although the trade allies do not currently receive program marketing materials, nine of 10 said they would use such materials to promote the program. Specific materials mentioned include:

- Flowcharts of how the program works,
- Co-branded program brochures,
- Case studies on the EOC website, and
- Energy-savings educational pamphlets.

Program Delivery

Trade allies discussed program delivery, including the bidding process, customer participation, measure installation, and quality control.

Project Bidding

Trade allies discussed several aspects of bidding. First, trade allies reported spending a wide range of time on the bidding process, from as little as four hours to as much as 10 weeks per bid, depending on the project size, measure types and quantities. However, most trade allies agreed that the average bid time is five days.

A majority of the trade allies (seven of 10) reported having no challenges with submitting a bid. Several trade allies stressed that EOC does not “play favorites,” but provides an equal opportunity for all bidding contractors. However, trade allies’ noted the following challenges:

- One trade ally reported concerns about underqualified contractors bidding on projects, which may reduce cost of the winning bid.
- Another trade ally highlighted the uncertainty of the bids being accepted, noting that each bid goes through multiple levels of approval.

In addition, trade allies reported a range of acceptance rates from EOC for their bid, as show in Table 3.

Table 3. Bid Breakdown

Profession	Percentage of Bids Accepted	Time to Prepare Bid
Construction Manager	100%	10 weeks
Electrical	50%	3 days to 10 days
Electrical	100%	4 hours to 4 days
General Contractor	100%	3 weeks
HVAC	17%	24 hours
HVAC	50%	5 hours to 40 hours
HVAC	~80%	1 day to 2 weeks
HVAC	100%	8 hours to 2 weeks
Insulation	50%	4 hours
Technical Training	100%	NP*

* NP = not provided

Although most trade allies (seven of 10) had no suggestions for significant changes to the bidding process, three would like to receive more feedback after their bids are accepted or rejected. These contractors expressed frustration and wanted to understand why the program had rejected the bids so they can improve their future bids. One trade ally stated, “...when we don’t get a project, I wonder why, and I’d like to know why – but we never know why. Was it paperwork, or wrong fixtures or what? I am always looking for an opportunity to improve.”

In a similar manner, a fourth trade ally expressed frustration with the lack of feedback on approved bids, stating, “It’s tough to know what’s really happening. ...once we were approved it’s tough to know what we were approved for, and EOC was always very, overly conservative with [their] numbers.”

Customer Participation: Understanding, Motivation, and Barriers

Trade allies had mixed opinions regarding the level of customers’ program understanding. Over half of the trade allies (six of 10) believe program participants are aware of the multiple entities involved in the program, stating that EOC and Xcel Energy go “hand-in-hand.” However, the remaining four trade allies were not certain if participants know about Xcel Energy’s contribution. As one trade ally stated, “They [building owners] know EOC is the intermediary of the funds, but it’s the face of the program, so it’s inferred that it is an EOC program.”

Most trade allies (nine of 10) cited the program’s financial benefits, such as lower utility bills, reducing capital expenditures, and an acceptable return-on-investment for the installed measures as the primary motivation for customers (building owners) to participate. Trade allies also noted the following selling points for the program:

- Increased operational efficiency,
- Lower maintenance costs,
- Education on how to save money and energy, and
- Joining the “energy-efficiency bandwagon.”



Despite clear benefits, many trade allies (eight of 10) indicated that there are numerous challenges for customers to engage in the program including:

- Upfront cost of installing recommended measures,
- Not understanding the value of energy efficiency,
- Wanting higher rebates,
- Skepticism about program benefits, and
- Lack of a defined process and schedule of events.

Program Implementation

Trade allies reported the following are the most commonly installed measures.

- LEDs
- T8 lamps and ballasts to replace T12s
- ENERGY STAR® appliances
- ENERGY STAR (low flow) fixtures
- Energy-efficient windows
- Energy-efficient doors
- High-efficiency boilers and furnaces
- Attic, crawlspace, and pipe insulation
- Reverse indirect and domestic hot water heaters
- Variable speed motors

Quality Control

All 10 trade allies reported following multiple quality control protocols. The majority of the trade allies (seven of 10) specifically mentioned that their companies have internal quality assurance protocols. Four trade allies provide a one-year warranty for most or all of the installed measures. A majority of the trade allies (seven of 10) also noted that EOC conducts site visits to ensure the contractor met the project criteria. In addition, five trade allies mentioned that, depending on the type of building, there are city, county, and/or state inspectors that conduct on-site inspections. One trade ally even reported that project owners and architects have conducted their own quality control.

Five of the trade allies handle LIMFW Program complaints and feedback as part of their internal quality control procedures without passing those customers along to EOC. Trade allies mentioned only one type of complaint: warranty concerns.

Communications

Trade allies discussed three types of project communication: 1) between themselves and EOC, 2) between themselves and the participant, and 3) between trade allies.

Trade Allies and EOC Communication

Once they win a bids, all 10 trade allies reported communicating with EOC several times to finalize the scope, solidify the participant contact (usually the maintenance technician for the project building), and develop a timeline to ensure all parties understand the schedule of events. The timeline includes such milestones as tenant notification of work, delivery of supplies, water or electricity shut off (if required), and installation of measures.

During the duration of a project, trade allies frequently communicate with EOC, sometimes multiple times a week, using multiple methods of communication (in-person meetings, phone calls, and email).

Trade Allies and Customer Communication

Although all 10 trade allies reported that they communicate and schedule measure installation with participants either in person or over the telephone, there was some mixed responses to the degree of communication with participants. As one contractor said, “We don’t have contact with those guys [owners]; we work through EOC.”

Trade Ally to Trade Ally Communication

None of the contractors tell nonparticipating contractors about the program, indicating that nonparticipating contractors are potential competition. As one trade ally stated, “We’ll talk to other trade allies that have done the same work with EOC, but we don’t turn others on to the program. It’s competitive.” However, six of the trade allies speak with program trade allies at project meetings, building walkthroughs, or to clarify work as subcontractors.

Program Success

Overall, trade allies indicated being satisfied with their program participation and reported two key areas of program success:

- ***EOC’s implementation.*** Nearly half of the c trade allies (four of 10) praised EOC for their professionalism and organizational ability to run a smooth program. One of these trade allies stated that the EOC staff “...was really helpful, had a heart for the program and end user, and is dedicated... and was honest ... we would work them again.”
- ***Engaging contractors.*** Over half of the trade allies (six of 10) stated that the program was a success because they felt good about their work; as one trade ally stated, “...it feels good to be part of the program... as a whole, all of us like working for the program because we are getting paid for doing something that matters and is meaningful.”



Benchmarking

As a part of the Colorado LIMFW Program process evaluation, Cadmus conducted a benchmarking evaluation of similar low-income multifamily programs. This chapter summarizes the research objective, methodology, overview of benchmarked programs, detailed findings, and how the Xcel Energy LIMFW Program measures up.

Objective

The objective of this benchmarking effort is to provide Xcel Energy with information about the similarities and differences between the LIMFW Program and other low-income multifamily programs. We compared programs that had all of the following three key criteria: (1) multifamily housing, (2) low-income tenant qualification, and (3) a comprehensive retrofit approach (i.e., requiring an energy audit of the building). Cadmus then examined the following elements for each comparison program:

- Program staffing
- Program funding
- Program delivery
 - Participation eligibility
 - Energy-efficiency education
 - Trade ally requirements and training
 - Measure installation and quality assurance/control
- Program marketing
- Common program measures and incentives
- Goal setting and participation

Following the presentation of this exploration, we briefly discuss successful program elements and remaining challenges.

Methodology

Cadmus began this research project by discussing the key criteria for the benchmarking effort with Xcel Energy staff. Next, we reviewed publically available information (e.g., American Council for an Energy-Efficient Economy reports, evaluation reports, and information on program websites) and our proprietary benchmarking database, as well as sought recommendations from EOC, the LIMFW program implementer, and Xcel Energy to identify specific programs for deeper analysis. After a thorough review, we identified four programs that met the three key program criteria,¹⁴ and conducted in-depth interviews with representatives of all four programs. Table 4 presents the benchmarked programs by sponsor, program name, and title of interviewee.

¹⁴ At the request of Xcel Energy, we did not include California programs.

Table 4. Comparison Programs

Program Sponsor	Program Name	Interviewee Title
Ameren Missouri	Multifamily Income-Qualified (MFIQ) Program	Program Manager
Burlington Electric Department (BED)	Weatherization Program	Program Director
New York State Energy Research and Development Authority (NYSERDA)	Multifamily Performance Program (MPP)	Project Manager
The Massachusetts efficiency program administrators	Low-income Energy Affordability Network (LEAN) Multifamily Program	Vice President of Real Estate and Energy Services

Overview of Benchmarked Programs

Ameren Missouri: Multifamily Income-Qualified Program

Ameren Missouri achieves energy savings and demand reductions from its MFIQ Program through the direct installation of cost-effective energy-efficiency measures in the tenant units of federally subsidized buildings and other public housing complexes. All participants receive a building-wide energy audit free of cost.

Honeywell Utility Solutions implements the program on behalf of Ameren Missouri. Honeywell staff includes program/project managers who oversee day-to-day logistics of projects, energy auditors, and technical sales representatives who primarily focus on recruiting program participants. Honeywell staff also oversees the licensed trade allies who install all energy-efficiency measures at no cost to tenants or participating property owners and/or managers. Staff performs quality control site visits of 5% of units and 10% of buildings.

Burlington Electric Department: Weatherization Program

BED is one of several entities that sponsor the Champlain Valley Office of Economic Opportunity’s Weatherization Program of Vermont. The Weatherization Program also receives funding from the State of Vermont, Department of Energy, and Efficiency Vermont.¹⁵ All qualifying low-income multifamily buildings may participate in the program, although higher incentives are available for buildings serving low-income tenants. In-house program staff performs energy-efficient upgrades at no cost to tenants or participating property owners and/or managers of low-income multifamily housing; BED subcontracts large or technical projects only. Staff also conducts post-installation inspections.

¹⁵ Efficiency Vermont is a private nonprofit organization operated by the Vermont Energy Investment Corporation.



Massachusetts Efficiency Program Administrators: Low-Income Energy Affordability Network Multifamily Program

The Massachusetts efficiency program administrators—the state’s gas and electric investor-owned utilities—contract with two lead agencies, Action for Boston Community Development and Action, Inc., who administer the LEAN Multifamily Program.

The program administer is the single point of contact for multifamily building owners interested in energy upgrades and leveraging existing utility funded energy-efficiency offerings. Buildings must meet income-qualification requirements (50% of tenants at 60% of state median income) to participate.

The program measures focus on lighting, appliances, weatherization services, and support for central heating and cooling system upgrades. Any cost-effective upgrades are fully subsidized by the program administrators.

Program staff conducts outreach to promote the program, assist building owners to benchmark the buildings’ energy use, conduct audits, and develop scopes of work. Staff also helps select pre-approved trade allies, although building owners can select any contractors that agree to the program pricing.

New York State Energy Research and Development Authority: Multifamily Performance Program

Through the MPP, NYSERDA offers incentives to owners of qualifying low-income multifamily buildings, based on the number of units in a building, to achieve a minimum 15% reduction in energy use. All multifamily buildings may participate in the MPP, but the program provides higher incentives to buildings serving low-income tenants.

Participating consulting engineers, known as Partners, deliver the MPP. Partners recruit and contract directly with participants to complete their project. Partners work with building owners to benchmark a building’s energy performance, conduct the building audit, and identify cost-effective efficiency opportunities. Partners also work with building owners to develop a scope of work (Energy Reduction Plan) and to identify financing sources to help pay for the recommended upgrades. Partners support building owners through the installation process, ensuring the correct installation of measures. Finally, Partners verify that measures are installed correctly and schedule a time with MPP staff to complete a site inspection. Partners then complete a post-retrofit utility billing analysis one year after project completion. If the Partner determines that the building achieved energy savings of at least 20%, the building owner receives an additional performance incentive.

Detailed Findings

As stated in the Objective section above, Cadmus benchmarked the programs’ staffing, funding, goal setting, delivery, marketing, offerings and incentives, participation, successes, and challenges. Each of these is outlined below.

Program Staffing

The number of full-time support staff for each program ranges from two (Xcel Energy) to 28 (BED). A third party implements all programs. Nonprofit organizations implement three of five programs, including the Xcel Energy LIMFW Program. An independent implementation firm (Honeywell) implements one of the remaining two programs and consulting engineers implement the other (see Table 5).

Table 5. Program Support Staff

Program Sponsor and Name	Implementer	Number of Full-Time Staff	Staff Roles
Ameren Missouri MFIQ Program	Honeywell: Utility Solutions	20	<ul style="list-style-type: none"> • Project managers for daily program operations • Technical sales representatives to promote the program • Energy auditors • Oversight of external installation contractors
NYERDA MPP	NYSERDA consulting engineers or Partners	9	<ul style="list-style-type: none"> • Project managers for daily program operations • Outreach and program promotion • Energy auditors • Oversight of Partners (who oversee installation contractors)
BED sponsored Weatherization Program	Champlain Valley Office of Economic Opportunity (CVOEO)	28	<ul style="list-style-type: none"> • Project managers for daily program operations • Energy auditors • In-house measure installation staff*
MA Program Administrator’s LEAN Multifamily Program	Action for Boston Community Development, Action Inc.	15	<ul style="list-style-type: none"> • Project managers for daily program operations • New client managers to promote the program • Energy auditors • Oversight of external installation contractors
Xcel Energy LIMFW Program	EOC	2	<ul style="list-style-type: none"> • Project managers for daily program operations • Outreach and program promotion • Energy auditors • Oversight of external installation contractors

* CVOEO staff provide oversight when external contractors are used.

Staff members have similar roles across the benchmarked utility LIMF programs, with only with slight variations in responsibilities (see Table 5). For example, the Ameren Missouri MFIQ Program includes a technical sales representative whose sole focus is participant recruitment and the BED sponsored Weatherization Program includes in-house measure installation staff.



Specific program staff roles in LIMF at the benchmarked utilities are as follows:

- Staff of all five programs, including the Xcel Energy LIMFW Program:
 - Act as program or project managers, supporting and managing the day-to-day project tasks.
 - Conduct energy audits for the purpose of making energy-efficiency upgrade recommendations.
 - Provide oversight of external installation contractors (the BED sponsored Weatherization Program staff primarily rely on in-house staff for measure installation).
- Staff at four of the programs, including the Xcel Energy LIMFW Program, promote and/or recruit program participants. Only the BED sponsored Weatherization Program relies on independent word-of-mouth to generate participation.

Program Funding

Similar to the Xcel Energy LIMFW Program, the NYSERDA and BED sponsored programs leverage multiple funding sources. However, the various funding sources have slightly different restrictions on the use of funds. For example, NYSERDA uses Regional Greenhouse Gas Initiative funds to replace space heating and domestic hot water systems, install building shell upgrades, and support other retrofits not covered under New York’s Energy Efficiency Portfolio Standard. In addition, through Green Jobs Green New York, NYSERDA offers low-interest loans to multifamily building owners for energy-efficiency upgrades and to offset the costs of the program-required energy audit. Much like EOC (the Xcel Energy implementer), CVOEO (the BED program implementer) compiles funding from multiple sources: the State of Vermont, Department of Energy, and Efficiency Vermont.

The remaining two programs, Ameren Missouri’s MFIQ Program and the Massachusetts efficiency program administrators’ LEAN Multifamily Program, are primarily funded by ratepayer dollars.

Program Delivery

Participation Eligibility

Although all programs are for low-income and multifamily sectors, each has slightly different income eligibility requirements and a different number of units to qualify as a multifamily building (see Table 6).

Table 6. Income and Unit Eligibility Requirements

Program Sponsor and Name	Income	Units
Ameren Missouri MFIQ Program	All federally subsidized housing units: U.S. Department of Agriculture, United States Department of Housing and Urban Development, public housing	3+
NYSERDA MPP	Twenty-five percent of tenants in the building must be at 80% of the state median income or less	5+
BED sponsored Weatherization Program	Tenants must meet the federal standard for low-income or have received specified government benefits within the last 12 months	5+
MA Program Administrators LEAN Multifamily Program	Fifty percent of tenants in the building must be at 60% of the state median income or less	5+
Xcel Energy LIMFW Program	Sixty-six percent of the tenants in the building must be at 80% or less of the local area median income and/or qualify for Department of Energy weatherization assistance	4+

As shown in Table 6, three of the programs, including the Xcel Energy LIMFW Program, have federal income-related requirements, while the remaining two programs rely on state medium income levels. NYSERDA and Xcel Energy have the most inclusive income eligibility requirements, allowing participation from tenants that earn up to 80% of the state median income.

Three of the five programs require at least five units per building.

Energy-Efficiency Education

All programs, including the Xcel Energy LIMFW Program, include some level of energy-efficiency education for the tenants, maintenance staff, and/or building owners. Two of the five programs rely on the trade allies to deliver energy-efficiency education, and three programs rely on various implementation staff to deliver education.

- The MA efficiency program administrators’ LEAN Multifamily Program trade allies discuss energy use with tenants, provide equipment maintenance and warranty information for building owners/managers, and offer technical training about equipment maintenance to building owners/managers.
- Ameren Missouri MFIQ Program trade allies provide tenant education (e.g., how to use upgraded thermostats).
- The energy auditors for the BED sponsored Weatherization Program promote behavioral change activities to tenants and maintenance staff during the energy audit.
- NYSERDA’s MPP Partners strongly encourage maintenance training for building management.
- Xcel Energy’s LIMFW Program implementation staff (EOC) provides education for the building owner/manager and trade allies throughout the duration of the projects, as well as providing tenant education after the project is completed.



Trade Ally Requirements and Training

Four of the five programs, including the Xcel Energy LIMFW Program, require at least a background check for trade allies. The BED sponsored Weatherization Program is the only one without any type of formal requirements, primarily relying on in-house staff to install measures.

The following is an aggregated list of installation trade ally requirements:

- Background check
- Specific measure-related licenses (such as for air conditioner tune-ups)
- Insurance
- Work history and/or previous work references
- Drug testing
- OSHA certification
- Lead safe certification
- Financial references

For three of the five programs, staff provide regular trade ally training opportunities such as measure-installation training or one-on-one mentoring. Although Xcel Energy does not provide trade ally training through the LIMFW Program, Xcel Energy does provide ongoing trade ally training through their trade ally network and has a staff member dedicated as a liaison with trade allies. The BED sponsored Weatherization Program is the only one without any type of formal trade ally requirements; as stated above, it primary relies on in-house staff to install measures.

Measure Installation and Quality Assurance/Control

For three of the five programs, including the Xcel Energy LIMFW Program, staff members solicit bids from participating trade allies for installing the recommended and approved measures. For the remaining two programs, NYSERDA’s MMP and the BED sponsored Weatherization Program, staff members rely on the implementer to determine and execute the scope. As a result, these two programs have installation contractors/staff who engage heavily with participants, while trade allies for the other three programs have limited participant interaction. However, these other three programs do have third-party implementers who are engaged with participants throughout the entire project.

NYSERDA has the most rigorous quality assurance and control process of all five programs, using engineers to conduct inspections at least twice during the project and to verify quality control. However, staffs for all five programs have post-installation inspections to ensure projects are completed as documented and all equipment is operating to specification, typically conducted by the individual responsible for the initial building audit.

Program Marketing

For four of the five program staffs, including the Xcel Energy LIMFW Program, primarily rely on word-of-mouth to generate participation. Three of these programs (Xcel Energy’s LIMFW, MA efficiency program

administrators’ LEAN Multifamily, and Ameren Missouri’s MFIQ) have dedicated staff who conduct targeted outreach (e.g., to low-income organizations and landlord associations), whereas the BED sponsored Weatherization Program uses no active marketing. Although NYSERDA relies on program Partners for promotion, they also market the program through internet and magazine ads, as well as by developing case studies. Furthermore, Partners host marketing Power Events to showcase recently finished projects to potential participants.

Common Program Measures and Incentives

All five programs shared a common measure (insulation); however, the degree of overlap was not significant (see Table 7). The NYSERDA program measures overlap with most of the Xcel Energy program measures while the BED sponsored Weatherization Program primarily focuses on weatherization measures with allowance for space and water heating measures.

Table 7. Program Offerings

Program Sponsor and Name	Lighting	HVAC	Weatherization	Low-Flow Showerheads/ Aerators	Water Heaters	Appliances
Ameren Missouri MFIQ Program	X	X				X
NYSERDA MPP	X	X	X	X	X	
BED sponsored Weatherization Program		X	X		X	
MA Program Administrators’ LEAN Multifamily Program	X	X	X			X
Xcel Energy LIMFW Program	X	X	X	X	X	X

Although all five programs include a building energy audit and recommendations, the programs’ incentive structures vary.

- Three of the five programs have project-based incentives (the Xcel Energy LIMFW Program, MA efficiency program administrators’ LEAN Multifamily Program, and BED sponsored Weatherization Program) that cover some portion of the overall project costs.
- One program is prescriptive (the Ameren Missouri MFIQ Program).
- One program is performance based (the NYSERDA MMP). If the Partner determines that the building achieved energy savings of at least 20%, the building owner receives an additional performance incentive. NYSERDA also provides financing options to encourage participants to complete the recommended measures.



For three of the programs (Ameren Missouri’s MFIQ Program, MA efficiency program administrators’ LEAN Multifamily Program, and the BED Weatherization Program), incentives cover 100% of the project costs. The percentage covered by the remaining two programs’ incentive is more variable (for NYSERDA’s MPP and Xcel Energy’s LIMFW Program).

Goal Setting and Participation

Four of the five programs, including the Xcel Energy program, base goals on projected energy savings and participation. CVOEO develops the BED sponsored Weatherization Program goals based on the amount of committed grant funding.

As shown in Table 8, the Xcel Energy LIMFW Program is one of three programs that is less than 10 years old. Staff at the other two programs (Ameren Missouri’s MFIQ Program and MA efficiency program administrators’ LEAN Multifamily Program) projected an increase in future program activity (i.e., participation) while implementation staff with the Xcel Energy LIMFW Program projected stable participation.

Table 8. Year Launched and Projected Future Participation

Program Sponsor and Name	Yr. Launched	Projected Future Participation
Ameren Missouri MFIQ Program	2009	Increase
MA Program Administrators’ LEAN Multifamily Program	2008	Increase
BED sponsored Weatherization Program	1984	Stable
NYSERDA MPP	2001	Stable
Xcel Energy LIMFW Program	2009	Stable

The number of units served in program year 2013 varied significantly, from 139 units in the BED sponsored Weatherization Program to 26,000 units in the MA efficiency program administrators’ LEAN Multifamily Program.¹⁶ The Ameren Missouri MFIQ Program served a similar number of units as the Xcel Energy LIMFW Program, at 5,800 and 4,897 units, respectively. However, it is important to recognize that the size of each service territory varies greatly and therefore so does the eligible population. For example, NYSERDA serves customers from nine different utilities across the state¹⁷ and the MA Program Administrators represent eight utilities across MA¹⁸; whereas BED is a municipal utility serving only 19,600 customers.

¹⁶ NYSERDA did not disclose the number of units served.

¹⁷ Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., National Fuel Gas Distribution Corporations, National Grid, National Grid-Long Island, National Grid New York, New York State Electric and Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

¹⁸ Berkshire Gas Company, Cape Light Compact, Columbia Gas Company, Liberty Utilities, National Grid, NSTAR, Unitl Corporation, and Western Mass. Electric Company.

Successful Program Elements

Communication emerged as the common key for continued program success. Representatives for three of five programs, including the Xcel Energy LIMFW Program, stated their programs would not be as successful if program staff did not provide clear, concise, and frequent communication with stakeholders (participants and trade allies) throughout the project period.

Remaining Challenges

Overall, no significant universal challenges to offering low-income weatherization programs emerged during our analysis. However, several program representatives described the following factors as challenges to successful program implementation:

1. **The changing landscape of energy efficiency:** Specifically, representatives for three of the programs, including the Xcel Energy LIMFW Program, cited the challenge of understanding ongoing changes in the energy-efficiency industry and how these changes affect their programs. This includes, for example, understanding how cost-effectiveness is determined and what goes into determining cost-effectiveness (e.g., the impact of changing codes and standards at the local, state, and national level) and keeping up with new as well as outdated technology.
2. **Financial constraints:** Three of the programs, including the Xcel Energy LIMFW Program, leverage funding from multiple sources. Representatives for two of these programs (not the Xcel Energy LIMFW Program) cited the lack of reliably available funds as the biggest challenge to program stability.

How the LIMFW Program Measures Up

Cadmus found that the Xcel Energy LIMFW Program excels in six of the nine areas we explored: staffing, funding, participation eligibility, energy efficiency education, and common program measures and incentives (see Table 9).

Table 9. Summary of the LIMFW Program

Program Staffing	With the fewest full-time staff, the Xcel Energy LIMFW Program does more with less.	+
Funding	Xcel Energy leverages funding to reach more customers with more energy efficient measures.	+
Participation Eligibility	Xcel Energy has one of the most inclusive income eligibility requirements, allowing participation from tenants that earn up to 80% of the state median income.	+
Energy Efficiency Education	Xcel Energy has one of the most robust education efforts providing energy efficiency education to trade allies, landlords, building managers, and tenants.	+
Trade Ally Requirement and Training	Although program specific trade ally requirements could be more robust, Xcel Energy provides on-going training through their trade ally network and has a staff member dedicated as a liaison with trade allies.	+/-



Measure Installation and QA/QC	EOC staff is heavily engaged with participants throughout the project including the initial energy audit, trade ally selection, oversight of measure installation, and post-installation inspections. However the LIMFW Program trade allies have limited interaction with participants.	+/-
Program Marketing	EOC follows best practices in conducting targeted word-of-mouth outreach. However, Xcel Energy’s LIMFW Program marketing toolbox lacks some compelling marketing tactics including: promoting case studies and/or hosting events to showcase recently finished projects to potential participants.	+/-
Common Program Measures and Incentives	Although incentives do not cover 100% of project, the Xcel Energy LIMFW Program provides funding for a wider range of cost effective measures than any of the other benchmarked programs.	+
Goal Setting and Participation	Given that the program is less than 10 years old, Xcel Energy may benefit for a customer analysis to determine the size of their low-income population, which may inform the growth opportunity of the program.	+/-

Cadmus’ benchmarking analysis identified four areas that Xcel Energy may want to consider fine tuning to expand and enhance the program in coming years.

1. **Trade Ally Equipment and Training.** Xcel Energy may want to consider developing a trade ally agreement that includes specific participation requirements for the LIMFW Program. In addition, integrating trade allies from the existing trade ally network could help expand the number of trade allies who bid on projects as well as promote the program to potential customers.
2. **Measure Installation and QA/QC.** Xcel Energy may want to consider leveraging the presence of trade allies to engage with participants beyond measure installation scheduling. This additional communication may create more ownership from trade allies for their work and therefore continue to strengthen the LIMFW Programs’ quality assurance process, as well as contribute to participant satisfaction.
3. **Program Marketing.** If Xcel Energy is interested in increasing participation, they may want to consider expanding program marketing. For example, develop and distribute case studies and host end-of-project events to highlight successful projects, as well as continue targeted word-of-mouth outreach.
4. **Goal Setting and Participation.** To set fully informed program targets, Xcel Energy may want to consider conducting a customer analysis to determine the true market potential for the LIMFW Program.

Appendix A. Program Implementer Interview Guide

Roles, Responsibilities, Management, and Communication

1. To get started, please describe your role with the Low-Income Multifamily program.
 - a. How long have you been in this role?
 - b. Roughly what percentage of your time is dedicated to the Xcel Energy Low-Income Multifamily program?
2. How many other staff members from EOC are dedicated to the program?
 - a. What are their roles?
 - b. Roughly what percentage of their time is dedicated to the program?
 - c. Do you consider the current staffing sufficient to support the program?
3. How many trade allies are engaged in the program?
 - a. What are their roles and responsibilities?
 - b. Are there qualifications to be a trade ally?
 - l. If so, what are they?
 - c. Is the number of trade allies sufficient to support the program?
4. Please describe the management structure of the program.
5. How would you describe the communication between Xcel Energy and EOC?
 - a. How often do you communicate with Xcel Energy?
 - b. With whom do you communicate?
 - c. In what format?
6. How about between EOC and the trade allies? (Probe on frequency and format)

Program History, Design, and Goals

1. How would you describe the primary mission of the program? (Beyond annual energy savings, what long term outcomes is the program designed to affect?)
2. Has the program undergone any changes since it first launched in 2009?
 - a. Potential changes: entry points into the program, measures offered, incentives amount or structure? (Paid to customers and/or trade allies/or directly to EOC), target market



(gas only, electric only, dual fuel), marketing, how trade allies/installers are recruited, etc.

- 3. Please describe the program goals in terms of participants (buildings) and savings (electric and gas).
 - a. Have these goals changed over the years? If so, how e.g., lower, higher, the same?
- 4. Which measure(s) drove program savings in 2013?
 - a. Do you anticipate that this/these measure(s) will continue to drive savings this year?
- 5. Is the current budget sufficient to support the program?
 - a. Is actual spending consistent with planned budgets?

Program Delivery (Theory)

- 1. Please describe the program process *[step by step to create a flow chart]*
 - a. **(Step 1: Awareness)** How do customers first learn about the program?
 - I. Who/what entity do customers contact to participate? (EOC, trade allies, Xcel Energy)
 - b. **(Step 2: Grant application process)** How do customers apply for the program?
 - c. **(Step 3: Verification, Scoring, and Preliminary Selection)** What are the criteria for EOC to select participants?
 - d. **(Step 4: Site-Visit and Audit Committee Review)** Please explain the pre-audit site visit.
 - I. Who makes up the committee of industry professionals who review the site findings?
 - e. **(Step 5: Energy Audit)** How are the auditors selected? *(confirm funding from Department of Energy covers cost of audit)*
 - I. How long does it take between pre-audit audit visit and when the audit is completed?
 - f. How are projects approved?
 - I. Who approves the projects? *(confirm Xcel Energy engineers)*
 - II. How long does the approval process take?
 - g. **(Step 6: Procurement)** How are installers assigned to a project?
 - h. **(Step 7: Management of EEM Installation)** Do you know roughly how long it takes between the initial energy audit and the completion of the measure installation?
 - i. **(Step 8: Completion, Inspection and Payment)** What are the quality controls in place for this program?

- I. Do you have any suggestions to improve Quality Control?
- II. How are rebates assigned and paid out?
- III. Do you think the amount of rebate provided is sufficient to encourage participation?

Marketing and Outreach

Next, I have a few questions regarding the marketing and outreach associated with this program.

1. Has the marketing approach the program changed since 2009? (Probe: Why and how)
2. What are the specific market barriers for the multifamily sector?
 - a. Have you developed specific approaches to mitigate those barriers?
3. Is EOC conducting any marketing activities to reach potential participants? If so, what are they?
(*Note: on the EOC and Xcel Energy website, but not high profile*)
4. Overall, what are the best marketing tactics for reaching customers and why?
5. What does EOC do to meet the three educational components of the program?
 - a. Tenant education
 - b. Housing provider staff education (landlords/owners)
 - c. Vendor/subcontractor education (installation contractors/trade allies)
6. Are you tracking and measuring your marketing and educational initiatives?
 - a. If so, how?

Data Tracking, and Reporting

1. How is the program tracked (e.g., database, excel spreadsheet, etc.)?
2. What is tracked? (e.g., measures, rebates, fuel type, number of units per building, location of project, number of projects per customer, phase of project etc.)
3. How are savings tracked? (e.g., recorded as per-measure savings or are all savings rolled up to the project level?)
4. Does the tracking include a unique identifier, such as an account number, that links customer data across multiple phases of the project?
 - a. If not, are customers tracked some other way?
5. (*If relevant*) Have you encountered any issues with the tracking?
 - a. If so, what were they? Have they been addressed?



6. Who is responsible for tracking system checks and corrections?
 - a. How are checks and corrections done?
 - b. How often are QC checks performed on the program database?
7. How are program accomplishments reported to Xcel Energy?
 - a. In what format?
 - b. How often?
 - c. By whom?

Customer Response

1. Have there been any major problems or complaints from participating customers or their tenants?
 - a. How are these addressed?
 - b. Have there been any major successes? What were they?
2. Have you identified any barriers to customer participation?

Wrap Up

3. What areas do you think contribute to the program's success?
4. What would you change about the program if anything?
5. What do you anticipate for the future of the program?

Thank you for your time. We greatly appreciate your input.

Appendix B. Participating Customer Survey

Interviewer instructions are in green.

Programming instructions are in red.

Audience: This survey is for participants (building owners or managers) in the Low-Income Multifamily Program

[Quotas=Census of all individual (15) PY 2013 participants; no quota]

Information Provided in Sample

[Premise address]
 [Contact name]
 [Contract title]
 [Phone number]
 [Number of units]
 [Funding per kWh]
 [Funding per Dth]
 [KWh Saved]
 [Dth Saved]
 [Measures installed]

PROGRAM DESCRIPTION: (DO NOT READ)

The Low-Income Multifamily Weatherization program provides funding for a wide variety of natural gas and electric equipment and process improvements for low-income multifamily buildings. The Program is implemented by Energy Outreach Colorado (EOC). EOC staff work closely with participants to identify potential improvements through an on-site energy audit, leverage funding (including Xcel Energy rebates) to cover the majority of the recommended improvements, select qualified contractor(s)/trade allies, and oversee the installation of the approved recommendations.

A. Introduction

May I speak with (INSERT NAME ON LIST)
 (IF NO NAME ABOVE, SAY:) the building owner or manager, or the person responsible for making building improvement decisions for this building?
 (ONCE RESPONDENT IS ON THE LINE, SAY:)

Hello, my name is _____ with Cadmus, a utility evaluation firm calling on behalf of Xcel Energy. We are conducting an evaluation study of the Low-income Multifamily Weatherization Program, to help inform Xcel Energy's future program offerings. Would you be willing in taking a short survey?

(IF NECESSARY, SAY:) I'm not selling anything, we are exploring the impact of energy efficiency programs offered in your area. Your responses will be kept confidential.



(IF NECESSARY, SAY:) This survey should take about 20 to 25 minutes of your time.
 (DO NOT READ UNLESS ASKED:) Xcel Energy’s contact for this study is Bruce Nielson who can be reached with any questions about the research study at 303-294-2203.

(IF NECESSARY, SAY:) Studies like this help Xcel Energy better understand their customers' needs and interest in energy efficiency programs and services. Your participation is important to help Xcel Energy make decisions about how they offer these programs to their customers.

B. Screeners

- B1. Our records show you participated in the Xcel Energy Low-Income Multifamily Program in 2013. Is this correct? (IF NECESSARY, SAY: Xcel Energy’s Multifamily Program is implemented by Energy Outreach Colorado and provides energy saving improvements to low-income multifamily buildings in Colorado)
1. Yes
 2. No (Ask if there is someone else in the office or organization who can speak to the program, such as a facility manager, if not, thank and terminate)
 98. (Don’t know) (Read prompt above; proceed as NO if they do not recall it)
 99. (Refused) (Terminate)

C. Awareness and Motivations

- C1. How did you first hear about the Low-Income Multifamily Program? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)
1. Billing insert/information came in the mail with my bill
 2. Community event/fair
 3. Email from Xcel Energy
 4. Friend, family member, or colleague
 5. From an Energy Outreach Colorado representative
 6. Email from Energy Outreach Colorado
 7. Phone call from Energy Outreach Colorado
 8. Colorado Energy Office
 9. From landlord
 10. From contractor/trade ally
 11. Newspaper
 12. Radio
 13. Social media
 14. Visited Xcel Energy’s website
 15. Through city government
 16. Other website [SPECIFY: _____]
 17. Other: [SPECIFY: _____]
 98. (Don’t know)
 99. (Refused)
- C2. What other ways did you hear about Low-Income Multifamily Program? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

1. Billing insert/information came in the mail with my bill
2. Community event/fair
3. Email from Xcel Energy
4. Friend, family member, or colleague
5. From an Energy Outreach Colorado representative
6. Email from Energy Outreach Colorado
7. Phone call from Energy Outreach Colorado
8. Colorado Energy Office
9. From landlord
10. From contractor/trade ally
11. Newspaper
12. Radio
13. Social media
14. Visited Xcel Energy's website
15. Through city government
16. Other website [SPECIFY: _____]
17. Other: [SPECIFY: _____]
98. (Don't know)
99. (Refused)

C3. What would you say was the most important factor prompting your decision to participate in the program? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

1. To save energy
2. To save money
3. Rebates
4. To make the building more desirable to tenants
5. To increase the value of the building
6. Other, [SPECIFY: _____]
98. (Don't know)
99. (Refused)

C4. Have you participated in any other programs offered by Xcel Energy?

1. Yes
2. No
98. (Don't know)
99. (Refused)

C5. (IF C46 IS 1) Which program(s)? OPEN-ENDED)(RECORD VERBATIM)

1. (Please Specify: _____)

D. Audit and Contractor/Trade Ally Experience

D1. Did you find the eligibility requirements to participate in the Low-Income Multifamily program easy to understand?

1. Yes
2. No



- 98. (Don't know)
- 99. (Refused)

D2. Was the application process itself easy to understand?

- 1. Yes
- 2. No
- 3. Didn't fill out the application
- 98. (Don't know)
- 99. (Refused)

D3. How helpful was Energy Outreach Colorado in explaining the program process?

- 1. Very helpful
- 2. Somewhat helpful
- 3. Not very helpful
- 4. Not at all helpful
- 98. (Don't know)
- 99. (Refused)

D4. How long did it take from when you applied to when you had the energy audit?

- 1. Less than a week
- 2. About 1-2 weeks
- 3. Between 2 and 3 weeks
- 4. Between 3 and 4 weeks
- 5. More than a month
- 98. (Don't know)
- 99. (Refused)

D5. Were you present for the energy audit?

- 1. Yes
- 2. No
- 98. (Don't know)
- 99. (Refused)

D6. **(IF D5 IS 1)** How knowledgeable were the on-site auditors? (Most often these are EOC staff)

- 1. Very knowledgeable
- 2. Somewhat knowledgeable
- 3. Not very knowledgeable
- 4. Not at all knowledgeable
- 98. (Don't know)
- 99. (Refused)

D7. How helpful were the audit report findings?

- 1. Very helpful
- 2. Somewhat helpful
- 3. Not very helpful

- 4. Not at all helpful
- 98. (Don't know)
- 99. (Refused)

D8. **(IF D7 IS 3 or 4:)** And what is the reason for your rating? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

D9. After receiving the audit, how long did it take to get the scope of work approved?

- 1. Less than a week
- 2. About 1-2 weeks
- 3. Between 2 and 3 weeks
- 4. Between 3 and 4 weeks
- 5. More than a month
- 6. More than two months
- 7. More than three months
- 98. (Don't know)
- 99. (Refused)

D10. Before the scope of work was approved, did the auditor give any indication about which improvements would likely be included in the project?

- 1. Yes (Please Specify: _____)
- 2. No
- 98. (Don't know)
- 99. (Refused)

D11. Were you notified of which improvements were NOT approved as cost-effective? **(Note: Analysis will consider that EOC leverages funding outside Xcel Energy which may cover non-cost-effective measures)**

- 1. Yes (Please Specify: _____)
- 2. No
- 98. (Don't know)
- 99. (Refused)

D12. Once the scope of work was approved, about how long did it take to secure bids and select the installation contractors/trade ally?

- 1. Less than a week
- 2. About 1-2 weeks
- 3. Between 2 and 3 weeks
- 4. Between 3 and 4 weeks
- 5. More than a month
- 98. (Don't know)
- 99. (Refused)

D13. And about how long did it take to complete the project, from the time your contractor/trade ally began work to when the upgrades were finished?

- 1. Less than a week



- 2. About 1-2 weeks
- 3. Between 2 and 3 weeks
- 4. Between 3 and 4 weeks
- 5. More than a month
- 98. (Don't know)
- 99. (Refused)

D14. How many contractors/trade allies did you work with?
 (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

- D15. How often did your contractor/trade ally communicate with you?
- 1. Very often
 - 2. Somewhat often
 - 3. Not very often
 - 4. Not at all
 - 98. (Don't know)
 - 99. (Refused)

- D16. Did your contractor/trade ally talk to you about the program?
- 1. Yes (Please Specify what they said about the program: _____)
 - 2. No
 - 98. (Don't know)
 - 99. (Refused)

- D17. Were there any improvements recommended to you that you did not install?
 (OPEN-ENDED)
- 1. Yes (Please Specify: _____)
 - 2. No
 - 98. (Don't know)
 - 99. (Refused)

D18. (IF D6 IS 1 :) Why did you decide not to install that measure? (OPEN-ENDED) (PROBE FOR SPECIFICS)
 (RECORD VERBATIM)

D19. (IF D15 IS 1 :) Do you have future plans to install the recommended improvements? (OPEN-ENDED)
 (PROBE FOR SPECIFICS) (RECORD VERBATIM)

D20. Are there any other energy-efficient improvements you installed, or are planning to install, that were not included in the project proposal? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

E. Installed Measure Longevity

- E1. My records show that you received [MEASURE NAMES FROM SAMPLE (Note: interviewer will not go through each measure by name)]. Is that correct?
- 1. Yes
 - 2. No (RECORD MEASURES IF DIFFERENT; ASK ABOUT THESE MEASURES IN THIS SECTION)

- 98. (Don't know)
- 99. (Refused)

E2. Just to confirm, is the equipment installed through the Low-Income Multifamily Program STILL installed in your building? (READ LIST OF MEASURES FROM SAMPLE, AND RECORD RESPONSE FOR EACH. ASK E3 IMMEDIATELY BEFORE CONTINUING WITH LIST, IF RESPONSE =2)

- 1. Yes
- 2. No (ASK E3 IMMEDIATELY BEFORE CONTINUING WITH LIST)
- 98. (Don't know)
- 99. (Refused)

E3. Why is that no longer installed? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

F. Barriers

F1. When you were deciding to install the recommended improvements, did you feel that you had enough information to make decisions?

- 1. Yes
- 2. No
- 98. (Don't know)
- 99. (Refused)

F2. Where did you go to for information about the Program? (DO NOT READ LIST) (RECORD VERBATIM) (ALLOW MULTIPLE RESPONSES)

- 1. Called Energy Outreach Colorado
- 2. Emailed Energy Outreach Colorado
- 3. Friend, family member, or colleague
- 4. Contractor/trade ally
- 5. Called Xcel Energy
- 6. Emailed Xcel Energy
- 7. Xcel Energy's website
- 8. Energy Outreach Colorado's website
- 9. Other, [SPECIFY: _____]
- 98. (Don't know)
- 99. (Refused)

F3. (IF F2 IS 1 or 2 :) What type of support did Energy Outreach Colorado provide you with? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

F4. (IF F2 IS 4 :) What type of support did your contractor /trade ally provide you with? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

F5. (IF F2 IS 5 or 6 :) What type of support did Energy Outreach Colorado provide you with? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)



G. Satisfaction

G1. Now I'd like you to think in terms of your satisfaction with Xcel Energy OVERALL. On a scale of 0 to 10, where "0" means you are NOT AT ALL SATISFIED and "10" means you are COMPLETELY SATISFIED, how would you rate your satisfaction with Xcel Energy? (IF NECESSARY, SAY :) You can use any number from "0" to "10."

- 1. (ENTER A NUMBER FROM 0 to 10: ____)
- 98. (Don't know)
- 99. (Refused)

G2. (IF G1 IS BELOW 5 :) And what is the reason for your rating? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

G3. Now I'd like you to think in terms of your satisfaction with Xcel Energy Low-Income Multifamily Program overall. On a scale of 0 to 10, where "0" means you are NOT AT ALL SATISFIED and "10" means you are COMPLETELY SATISFIED, how would you rate your satisfaction with Low-Income Multifamily Program overall? (IF NECESSARY, SAY :) You can use any number from "0" to "10."

- 1. (ENTER A NUMBER FROM 0 to 10: ____)
- 98. (Don't know)
- 99. (Refused)

G4. (IF G3 IS BELOW 5 :) And what is the reason for your rating? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

G5. On the same 0-to-10 scale, how satisfied are you with the services provided by Energy Outreach Colorado?

- 1. (ENTER A NUMBER FROM 0 to 10: ____)
- 98. (Don't know)
- 99. (Refused)

G6. (IF G5 IS BELOW 5 :) And what is the reason for your rating? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

G7. On a scale of 0 to 10, where "0" means you are NOT AT ALL SATISFIED and "10" means you are COMPLETELY SATISFIED, how satisfied are you overall with the contractor(s)/trade allies who visited your building?

- 1. (ENTER A NUMBER FROM 0 to 10: ____)
- 98. (Don't know)
- 99. (Refused)

G8. (IF G7 IS BELOW 5 :) Why do you say that – what could they do better? (DO NOT READ LIST, match verbatim to one of the categories)

- 1. Bad customer service
- 2. Did not clean up
- 3. Installer had to come back
- 4. Late for appointment
- 5. Not respectful of respondent's property

6. Not knowledgeable
7. Problem with installation
8. Co-pay (price)
9. Problem with equipment (SPECIFY:)
10. Other (SPECIFY:)
98. (Don't know)
99. (Refused)

H. Closing

- H1. Do you have any other comments for Xcel Energy at this time? (OPEN-ENDED) (PROBE FOR SPECIFICS) (RECORD VERBATIM)

This completes the survey. Your responses are very important to Xcel Energy. We appreciate your participation and thank you for your time. Have a good evening/day.



Appendix C. Trade Ally Interview Guide

Roles and Responsibilities

1. How long have you been in the industry and what services do you/does your business offer?
2. How long have you been involved with the Xcel Energy Low-Income Multifamily Program?
 - a. Have you participated in any other programs like this previously? (Probe to specify which program)
3. Please describe your roles and responsibilities for the Xcel Energy Low-Income Multifamily Program.
 - a. Have your roles and responsibility changed throughout the time you have participated in the program? (Probe: If in another program, ask if the roles and responsibilities are similar.)

Participation and Support (Awareness, Motivations, and Communication)

4. How did you first hear about the program? (Probe: If in another program, ask the timing of participation.)
 - a. What benefits were you looking to receive by participating in the program?
 - b. Were there any perceived drawbacks to participation? (If so, what were they? Expected or not expected?)
 - c. (If participating in another program) Does your participation in this program benefit your participation in the other(s), or vice versa?
5. What were the steps to become a participating contractor/trade ally?
 - a. Is there anything about signing up/initially participating in the program that you think could be improved?
6. Has Energy Outreach Colorado supplied you with marketing materials? (If so, do you use them/find them to be effective?)
 - a. Are there any other marketing materials that you would like to help you promote the program more effectively?
7. What are some of the difficulties you encountered when first starting to participate in this program? (Probe: If in another program, ask about the differences.)
8. Who is your primary point-of-contact for the program?
 - a. How often do you communicate with EOC program staff? (Probe: What format?)
 - b. How would you evaluate the support that you receive from the EOC staff?
9. Do you talk to other contractors/trade allies about the program? (Probe for context and content of those conversations.)

Program Delivery

10. How does the program work from the participants' (i.e., building owner/manager) point-of-view?
11. Based on your experience, what drives landlords/building managers to participate?
 - a. What tends to be the most effective selling points for this program? (Probe: energy savings, the incentives, improved tenant satisfaction, etc.)
 - b. Do building owners/managers tend to associate the program with Xcel Energy, EOC, or another entity?
 - i. How do the building owners/managers refer to the program?
12. Based on your experience, do you think the program rebates are sufficient to drive participation? (Probe: If they answer no or not sure, ask for specifics.)
13. What do you think makes it challenging for a building manager/owners to participate? (Probe: lack of awareness, buy-in, logistics, etc.)
 - a. What are some of the reasons that a building manager or owner has declined to participate in the program?
14. Tell me about the bidding process. Have you run into any challenges? (Probe: if challenges, ask what they are and how they have been addressed.)
 - a. How much time do you spend on a bid?
 - b. How often are your bids rejected? (Is the entire package rejected, or just some measures?)
 - c. Is there anything you would like to change about the bidding process? (If so, what?)
15. How do you usually communicate with participants? (Probe: in person, telephone, e-mail, etc.)
16. What is the process of scheduling a project with the participant?
 - a. How long does it typically take between scheduling and install?
17. How does project implementation work? Is there a process you follow?
18. Are there quality assurance protocols for project completion?
 - a. If so, what do they entail? (Probe: who does what, when, and how often?)
19. What kind of feedback do you get from participants?
 - a. How do you handle customer complaints? (Probe: is there a process for passing customers along to EOC?)



20. What are the most common measures being implemented? (Probe: Why do you think that is?)
 - a. Do you see any trends in the quantity of measures being installed, or the size of projects?
 - b. Do you notice any differences between the projects in the smaller complexes compared to those in the larger ones?
21. Do you know if participants are leaving all of the measures installed after the work is complete? (Probe: If removing measures, what measures are taken out and why?)
22. What is the payment process (for a rebate)?
 - a. Have you encountered challenges? What were they and how were they resolved?
23. What types of data do you collect for the program? (Probe: number of units in the building, fuel mix, measures installed projected savings, etc.)
 - a. How does your company transfer data to EOC?
 - b. How often does your company provide the data to EOC?

Wrap-Up

24. (Probe: If in another program, ask) What are some of the differences that you observe between the programs that you participate in?
25. Are there program areas that you feel are not working well or could be improved?
 - a. What suggestions do you have for improvement?
26. What are the main areas of success for this program?
27. Is there anything else you'd like to add or share to help us evaluate this program that hasn't already been discussed during this phone call?