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Engaging Communities for Energy and Water Savings:

Improving Measurement and Effectiveness of Energy/Water Audits for Low-Income Neighborhoods

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GENERAL OVERVIEW *(applicability to other utilities and alternatives; problems and how resolved; whether goals were achieved; recommendations)*

The grant project helped to improve performance by the Community Weatherization Coalition (CWC), a volunteer-based coalition made up of several non-profits organizations and the local municipal utility, to provide effective home energy/water tune-ups and persistent savings of money and resources in local low-income households. Adopting Community-Based Social Marketing approaches – focusing in particular neighborhoods and performing research and focus groups to build understanding of target audiences-- helped to address barriers and enhance benefits of energy saving educational programs. Rigorous measurement of impacts of home energy/water tune-ups in subsequent years helped to quantify local benefits of home energy/water tune-ups in tangible savings of money and resources, including carbon offsets. These lessons and approaches could be useful to non-profits and utilities in other communities interested in supporting volunteer-based weatherization services for low-income households.

Purpose *(why the project was undertaken; problem intended to solve)*

Low-income households face high costs of energy and water, primarily because they inhabit older and less efficient houses. In Alachua County, low-income households pay on average 22% of their income towards utility costs, compared to only 5% paid by the population as a whole. In order to address this problem, the CWC and partners sought to improve the effectiveness of volunteer home energy tune-ups provided for low income households. Literature on home energy/water audits and retrofits for low-income households shows a tendency towards very low participation rates, minimal behavior change, and disappointing energy savings per return on investment. This project addressed these problems directly through a team approach involving a local utility (GRU), researchers at the University of Florida, and a non-profit coalition, the CWC, working together in targeted neighborhoods. Objectives included formally outlining the successful approach that the CWC has developed and used for the last 10 years; measuring and verifying the impact that CWC's audits have had to date; developing a community-based social marketing (CBSM) campaign to complement and enhance CWC's previous protocols; carrying out enhanced audits and comparing their results in energy savings to conventional CWC audits; calculating and marketing carbon offsets from home energy audits; and producing materials to document results and best practices for home energy/water audits.

Utility Name and Address: Gainesville Regional Utilities, 301 SE 4th Avenue, Gainesville, FL 32601

Utility Description: Gainesville Regional Utilities, known as GRU, is a multi-service utility owned by the City of Gainesville. GRU is the 5th largest municipal electric utility in Florida. Its combined services make it the most comprehensive utility service provider in Florida. GRU serves approximately 95,000 retail and wholesale customers in Gainesville and surrounding areas, offering electric, natural gas, water, wastewater and telecommunications services.

GRU supplies over 2,000 GWh of electrical power annually for the following classes of use: residential (~822 GWh), commercial (~794 GWh), industrial (~166GWh), wholesale (~223 GWh), and outdoor lighting (~23 GWh). GRU employs a diverse array of fuel types to deliver this energy. These include a mix of fossil fuels and renewable sources,

such as biomass and solar. In fact, GRU is the second-largest solar utility in the state on a per customer basis.

GRU strives to provide these critical services to its customers at competitive rates, and in a manner that is safe, reliable, and environmentally responsible.

Key Personnel and Phone Numbers

Vanessa Aragon, Project Manager, GRU, 352-393-1470 (oversee grant requirements)

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Summary Description of Activities *(Thoroughly describe the scope of the project)*

The CWC recruited participants through its existing volunteer weatherization program, and worked with social marketing specialists to design and launch a new campaign to stimulate energy-saving behavior change among households in a targeted Gainesville neighborhood. The CWC strengthened relationships with low-income neighborhoods with strong local organizations. New audit approaches tested included greater follow up with homeowners, along with a neighborhood-based social marketing campaign that targeted attitudes and specific behavior changes, and reduced the barriers to adoption. Over the first year of the grant, CWC auditors carried out 57 energy/water audits and compared their results with those of previous audits in comparable Gainesville homes without the CBSM campaign.

UF resource efficiency experts analyzed GRU energy and water usage data, as well as CWC data from home energy/water audits, developing and carrying out protocols to measure direct changes in energy use resulting from CWC past audits using community-

wide baselines for GRU energy consumption. They statistically compared outcomes before and after the improvements to evaluate the impact of the CBSM campaign in terms of energy savings. These measures will also be used to calculate the carbon offsets generated by the energy, water and money savings from CWC audits, and to explore the market potential for carbon offsets to generate revenue for continued weatherization programs.

This project is innovative because it combined new community-based social marketing approaches to behavior change with innovative, rigorous measurement tools that can generate measures of energy savings and carbon offsets. It evaluated the effectiveness of enhanced home energy/water audits conducted by volunteers, developing and testing alternative approaches to home energy/water audits to improve energy conservation practices. By combining data from audience research and energy use, CWC auditors were able to adapt their strategies and focus on the most effective messages, specific behaviors we sought to change, and barriers and benefits faced by our clientele, in order to have the greatest impact. Utility usage data from participating households combined with interview and focus group data produced a fuller picture of how low income residents adopt energy conservation behaviors and what impact that has on utility bills and energy usage. The project team documented the lessons learned, tools used, and best practices for both weatherization programs and their measurement, and made them available for other utilities and non-profits across the country who are interested in implementing similar projects in their communities. We produced step-by-step guidelines along with suggested educational materials and best practices, and made them available in an online manual and a webinar format.

Project Dates: May 1, 2016- May 1, 2018

Alternatives *(Thoroughly describe all known alternatives to the project, including research needed, and an explanation for why the chosen path was taken)*

Most home weatherization activities are carried out by professionals paid by private parties or the government. This project tested ways to measure and improve the impacts of weatherization measures carried out by trained community volunteers at no cost to low-income residents, both homeowners and tenants. Partnerships with local city government, municipal utility, and other non-profits were a key part of the unique coalition strategy, that seeks to expand educational services to achieve measureable and persistent impacts in behavior change, as well as money and resource savings.

RESULTS TO DATE

HISTORY OF CWC

The Community Weatherization Coalition (CWC) is a grassroots community coalition made up of citizens, religious leaders, and NGOs concerned about Alachua County citizens who spend a large percentage of their income on home energy bills. Our mission is to improve home weatherization and energy efficiency for low-income households through education, volunteer work projects, and community-building. The CWC developed over several years, starting with the faith-based community and evolving into a collaboration of nonprofit, government, faith-based, business, and university partners working together to address an unmet need within Alachua County.

CWC's story began in 2005 when church members in Gainesville, Florida reported paying \$300-500 each month for utilities. For some, this amount was 25% of their income. Recognizing that this energy burden seemed higher than average, local church leaders affiliated with Action Network reached out to Gainesville Regional Utilities (GRU) to hold a public meeting at a local church. Further research with six regional agencies revealed that they were receiving an average of 250 calls per month, or an equivalent of 18,000 residents a year, requesting assistance with their utility bills.

The group partnered with a local critical home repair organization, Rebuild Gainesville (now Rebuilding Together North Central Florida, RTNCF), to request the development of an energy audit program that would assist Alachua County residents to decrease their energy burden and monthly utility bills. Volunteers would be trained by local professionals to perform home energy audits for the homes receiving RTNCF's home renovation and repair assistance in 2007.

Members of this newly formed coalition met monthly, and systematically worked to resolve a series of questions and issues. By October of 2007, a committee structure was developed with a Case Management Committee, a Volunteer Operations Committee and a Fund-Raising/Development Team. A small, representative Executive Committee defined the CWC Mission, Goals and logo, and signed the first memorandum of understanding with GRU.

In 2008, grants and donations allowed the CWC to hire a part-time Volunteer Coordinator and to begin operations. CWC's first 23 volunteer energy auditors were trained by February of 2008, and bi-annual trainings were held twice yearly from 2008-2011 to continue to train and develop volunteers. A loss of funding and of key personnel caused a decline in activity from 2012-2014. Since early 2015 the CWC renewed its activities with a full-time Program Coordinator, a small volunteer Executive Committee, and an Advisory Board with representatives from key partner organizations. With new sources of funding and important research partnerships, over the past three years the CWC has expanded its services, reaching almost 900 local households by 2018.

COMMUNITY-BASED SOCIAL MARKETING (CBSM) RESEARCH

Community weatherization programs, and many non-profits that serve people in their community, can increase the impact of their program using applied social science research. One method for conducting social research and translating that into strategies to increase program impacts is Community-Bases Social Marketing (CBSM). CBSM is a useful form of "action research" focused on using social science methods to feed into practical change.

CBSM can be helpful because it offers a framework of traditional marketing concepts that can help organize information and identify specific opportunities to make small changes to a program to yield results. These marketing concepts include target audiences, benefits, price (barriers), place (where and when to communicate), and promotion (how and what to communicate to achieve specific outcomes). At the core, CBSM for non-profits is a method of listening to program participants, discovering the benefits of and barriers to their behaving in ways a non-profit wants them to, and increasing the benefits while decreasing the barriers for the clients.

The CBSM project goals defined in the DEED grant proposal included:

- Design, implement, and evaluate the effectiveness of CWC social marketing materials
- Improve targeting of audience segments
- Select appropriate conservation behaviors
- Develop strategies to lower barriers to adoption

These changes were expected to increase CWC program participation including client applications, volunteers trained, and the extent to which those trained completed service as active volunteers.

The CBSM research was planned and carried out with the full participation of CWC staff, volunteers, and partners, using an applied approach that sought to implement changes throughout the organization and its procedures and activities. The research built on pillars of strategic planning priorities and the commitment to a community-based strategy embedded in our strong collaboration with a particular neighborhood. Research activities included a neighborhood survey and focus groups with CWC stakeholders: volunteers and clients. Findings from the research led to implementation of changes in language, marketing materials and strategies, training content and approaches, volunteer engagement, procedures and materials used, partnership efforts, and assessment of new program priorities. Follow-up phone interviews with residents revealed positive perceptions of the impacts of CWC tune-ups in knowledge, behavior change and satisfaction, and evaluations showed that the improvements implemented using the insights from CBSM led to increased numbers of clients, volunteers, and new forms of outreach to clients. These findings were reported in a publicly available webinar, and in a Best Practices Manual for Applied Social Research to Improve a Non-Profit Service Organization (see Appendix F). These activities and results are detailed below.

I. Strategic Planning: The Big Picture

The CWC has come together and developed blueprints for the program's future twice in the recent past. The first of these sessions took place in 2015, before the DEED Grant, and helped identify the need for new activities and research that the DEED Grant funded. The second planning session took place in 2017, as part of the grant effort, to reflect on the social research conducted during the grant to that point. Both strategic planning efforts helped clarify organizational goals, vision, and immediate next steps needed to further build the program.

Strategic Planning 2015

On May 16, 2015, CWC went through a strategic planning meeting that helped distill CWC's values, chart directions for the program's future, and lay the groundwork for working with Gainesville Regional Utilities (GRU) and applying for the APPA DEED Grant. Program goals and objectives that were identified at the meeting fell into four priority areas, explained briefly below: Clients; Energy Efficiency; Volunteers; and Organization.

Clients: Strengthen community-level engagement starting with one neighborhood, and improve client services, satisfaction, and energy efficiency.

Energy Efficiency: Collect and communicate data including metrics on energy and water used (and conserved), and partner with clients to increase efficiency.

Volunteers: Train and engage active volunteers, including members of communities in which CWC assists residents.

Organization: Develop a clear, sustainable organizational structure and connect with communities in which CWC has been working.

These priority areas helped the CWC to craft the goals and activities for the DEED Grant proposal.

Strategic Planning 2017

A follow-up strategic planning meeting in 2017 allowed the CWC to focus on future priorities. In preparation for the two-part strategic planning meeting, an electronic questionnaire was developed to assess program strengths, opportunities, and aspirations for the future—from 2017 to 2020 and beyond. Twenty-two people related to CWC, including those in leadership roles, volunteers, staff, and partners, were invited to provide feedback, and 18 of those people responded. Most of the questions (21 of 25) asked for qualitative responses to questions about the program, its successes, and opportunities for improving in the coming years. One researcher, the CBSM Coordinator, analyzed these data and prepared two reports that were presented to attendees at the strategic planning meetings. One report helped strategic planning meeting attendees understand what CWC does well, program strengths, values, accomplishments, future goals, and opportunities to achieve those goals. Another document created to assist strategic planning meeting participants was a Strengths, Opportunities, Aspirations, and Results (SOAR) analysis of the survey responses. This document was one step away from the raw data and one move towards building a blueprint for CWC to set and accomplish goals for the next three years of the program's operations. In this case, the qualitative responses to each question were organized into categories based on the areas of the CWC program to which they applied. These program areas included:

- Client services
- Energy and water efficiency
- Volunteer engagement
- Organizational efficiency
- Organizational structure
- Collaboration with other organizations
- Organizational sustainability

A SOAR (Strengths, Opportunities, Aspirations, and Results) analysis is like a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats), with an emphasis on positive future planning. Since CWC did a SWOT analysis in 2015 and felt aware of internal weaknesses and external threats, the SOAR approach reframed the analysis with a focus on the future. For the purposes of the SOAR analysis:

Strengths: what we do well and can build upon as we plan for the future.

Opportunities: where we can improve, expand, and leverage to achieve our mission, vision, and goals.

Aspirations: what we care deeply about, our strategic initiatives, and strategy bound to our values. This is our to-do list with soul!

Results: indicators of our progress and how we know we are successful.

On June 14 and 29, 2017, Community Weatherization Coalition (CWC) board, staff, and volunteers participated in a two-evening strategic planning workshop that took place on weeknights from 5:30-8:30pm. There were 12 participants at the first meeting; 11 participants at the second; 7 participants attended only one of the two.

During Day 1 of the strategic planning, the activities included:

- Reviewing the history of CWC and how we got to the present
- A presentation of select pre-planning survey data
- Time to process qualitative responses
- Sharing thoughts in small groups
- Reporting to the larger group
- Discussing patterns, trends, and ideas for moving CWC forward

A report prepared after the meeting discussed the process, what was discussed, and a summary of possible Strategic Initiatives for moving CWC forward through 2020 (for the full report, see Appendix A- Strategic Planning 2017 Report). Ideas that came out during a brief discussion of the CWC mission were captured and used to develop a new tagline during the later logo update for the program. Ideas for a vision statement were also captured to assist in the potential future formation of a vision statement for the program. The organizational values highlighted in this meeting by participants included:

- Commitment
- Respect
- Connection
- Understanding
- Learning as an Organization
- Collaboration/Partnerships
- Relationships
- Care
- Helping/Service
- Communication

The Strategic Initiatives discussed and captured during the first day were presented back to participants during Day 2 of the strategic planning. That complete list of possible initiatives was summarized into a repository of potential future directions for CWC. Participants of the second meeting prioritized these possible initiatives into four categories based on need and feasibility (Table 1).

Table 1. Priority classification for strategic initiatives

<i>Feasibility</i>	<i>High Need</i>	<i>Low Need</i>
<i>High</i>	High Priority	Medium-Low Priority
<i>Low</i>	Medium Priority	Low Priority

The highest priority initiatives were those that participants discussed as being both high need and high feasibility ideas. The six priority Strategic Initiatives that were identified at the end of both meetings included:

- A. Commissioners:** Meet with Commissioners in local government to communicate the benefit of CWC and continue positive relationships and funding
- B. Marketing Plan:** Develop a marketing plan including one or several short promotional videos to meet program needs and accomplish outreach and fundraising goals
- C. Engaging business sponsors**
- D. Training:** Continue to improve and modify the training as the program evolves, adapts, and changes
- E. Digitization:** Digitize application, tune-up form, and follow-up, transitioning from paper forms to tablets
- F. Work to engage the faith-based community**

Meetings with Commissioners in local government had already been scheduled before the strategic planning; participants discussed tactics and strategy that CWC leaders could use during those forthcoming meetings. One of the most prominent other needs that emerged, as a way to accomplish multiple goals for CWC, was to develop a promotional video. A common thread throughout the 2015 and 2017 Strategic Planning Workshops was the need to hear from and involve people within the communities that CWC has served.

II. Community-Based Strategy

Since 2016, CWC had been attending meetings of a group of partner organizations, led by Alachua Habitat for Humanity, working together as part of the Greater Duval Neighborhood Revitalization Initiative. A Duval neighborhood Community Advisory Board was created in 2016 to support the CWC's energy and money-saving programs. A grassroots community group, the Greater Duval Neighborhood Association (GDNA) was formalized as a neighborhood service organization in 2017, and the CWC focused our social research in the Duval neighborhood, where we could work with the GDNA to recruit research participants, and we hoped, recruit clients as well.

As part of the DEED grant activities, we proposed to conduct a survey of Duval residents to learn more about their knowledge, awareness, and behaviors of energy/water efficiency and conservation as well as about the CWC program itself. We intended to "capture audience segment attributes from a broader sample of neighborhood residents" to complement the deeper information that would emerge from focus groups that were also planned. The pre-survey, though, took a different turn than we expected.

The GDNA also planned to conduct a survey to collect needed information from residents on a broader set of neighborhood needs to help direct the formation of their own social service programs. They developed questions to assess community-wide need for programs such as job training, childcare assistance, and social support for the elderly, as well as housing improvement and utility assistance. We decided the best course of action would be to help support the GDNA survey rather than to conduct a separate survey of the same constituents. This avoided the possibility of community research burden and prevented conflation of the research efforts among constituents, and allowed us to support rather than hinder the GDNA research effort.

Another interesting element of the GDNA's survey was that they used the survey process itself as a method of community development. They hired high school students from the Duval neighborhood as surveyors, and provided resume-writing instruction, job

training, and a summer job for local students. Hiring student surveyors created an intergenerational link to help weave the community together, as youths from the neighborhood surveyed adults and elders in the neighborhood. This survey method was also an advertisement for the GDNA's Neighborhood Revitalization Initiative, letting people know new service programs were being created and expanded, and inviting their input and participation. Lastly, the survey established mailing and phone lists of residents who were interested in each proposed program area.

The CWC used a portion of the research budget of the DEED grant to help GDNA hire those young people and conduct the survey of community needs, in exchange for including a question assessing interest in CWC's services. This strategy and adaptability helped us to build trust and goodwill among our organizations, and provided CWC with a list of potential clients in our target neighborhood, over 15 of whom became clients.

Later, our research partnership continued as some GDNA board members helped serve as advisors and helped recruit focus group participants. This in-group recruitment meant we needed to do less work to get participants to attend our focus groups. Once the focus group data had been collected and marketing strategies had been developed, in February 2018 the research team also developed a presentation to share focus group results with focus group participants and community advisory board members, GDNA board members, CWC board members, and other stakeholders. Our collaboration with these community and partner organizations was important in conducting social research for the grant, and will continue into the future.

Duval and other neighborhoods targeted by the CWC are inhabited primarily by low-income, African-American families who live in older houses with out of date energy systems. CWC energy survey clients include single mothers with young children, elders (40% of Greater Duval's population) living on fixed incomes aging in place, veterans, and both homeowners and renters. Home energy/water tune-ups carried out in 103 homes in Greater Duval neighborhood over the past 10 years resulted in an average savings of \$313 in utility expenses the subsequent year. Multiplied by 103 homes, this figure suggests that Duval residents saved approximately \$32,239 in utility expenses each subsequent year due to CWC tune-ups. The Greater Duval Neighborhood Association awarded the CWC "Favorite Partner" in 2017.

III. Focus Groups

In addition to the Duval survey, initial social research was conducted using focus groups designed to collect information from volunteers as well as clients and potential clients that could be used to improve the program. A total of five focus groups were conducted in the summer of 2016: two with volunteers and three with clients and potential clients.

Focus Group Research Goals

Having clear goals helped us determine methods and specific questions. The goals of the focus groups were to:

- Uncover benefits and barriers to getting a home energy/water audit, adopting conservation behaviors, and being an active volunteer
- Discover appropriate communication channels, content, and strategy for audit client and volunteer recruitment
- Improve audit recruitment and increase the number of audits

- Increase utility savings of audited households, incorporating insights from CBSM to improve the audit process
- Increase volunteer training enrollment and volunteer activity

Methods

1. Data Collection

Focus group guides were developed before each focus group and, based on past group responses, different questions were asked of the second two groups, to dig deeper into barriers, benefits, and proposed changes. See Appendix B and C for example focus group question guides used to collect focus group data.

Of the five focus groups, the two focus groups that were conducted with current auditors took place on June 15, 2016 with five participants and June 22, 2016 with six participants. The three focus groups with clients and potential clients were comprised of residents of the Duval neighborhood who constituted a Community Advisory Board (CAB). These focus groups took place on July 11, 2016 with six participants, and two more focus groups were conducted on August 29, 2016 with six and nine participants each. Three people participated in a group on both days, so there were 18 unique participants. Each focus group took around two and a half hours including a 30-minute dinner period before the focus group started in which participants arrived, got a plate of food for dinner, and received informed consent paperwork and instructions to read and sign the document.

The focus group moderator gave participants verbal informed-consent information along with the written informed consent form, which each participant signed. The research team maintained participant confidentiality. Accordingly, they would not associate participants' responses with their names or personally identifying information. However, the team could only encourage, but not guarantee, that other focus group participants would do the same. After instructions, participants were asked an icebreaker question to initiate group conversation. Each focus group was audio recorded and a note-taker recorded responses and her thoughts and observations as the moderator asked questions and participants responded.

The moderator asked questions, kept time, helped encourage quieter participants to share, gently asked more talkative participants to yield when appropriate, and allowed conversation to follow what participants deemed important and relevant to the topic and questions. At the conclusion of the focus group, participants received a \$25 gift card as compensation for their participation.

2. Analysis

The CBSM coordinator, who moderated four of the five focus groups, transcribed the audio recordings into a Microsoft Word document. The transcriber also kept a running list of memos of things like observations of differences between focus groups and among group participants, similarities and summarizing thoughts, and ideas inspired by the focus groups.

Transcripts of the first two focus groups, with volunteer auditors and CWC board members, captured the main ideas expressed, and the transcriber only rarely quoted the participants verbatim. This was faster and more cost effective than typing every word these focus groups participants shared. While volunteers provided important information, the transcriber felt confident she would accurately understand the meaning and essence of what they shared and did not need to record every word exactly as it was spoken. Capturing major ideas was also appropriate since the transcriber was familiar with the CWC board members, volunteers, volunteer training, and audit process from the perspective of the volunteers.

When the CBSM coordinator transcribed the focus groups with residents, however, she chose to transcribe what participants shared much closer to verbatim than with the volunteers. This created a record to which the researcher and others would be able to return with residents' statements, to verify or challenge a first impression or pre-conceived notion. This information was important, in order to truly understand what these members of the program's target client audience shared, not what the researcher or other member of CWC wanted to hear or thought they heard on first listen.

The five focus group transcriptions were then uploaded into MaxQDA, a qualitative data analysis program. Data were then coded, or grouped into categories that helped organize the data. During the coding process, new codes were developed as needed, when they became apparent. Once the coding process was completed and all statements the researcher felt were relevant and helpful had been categorized, the researcher could see all of the statements related to or expressing a given concept. This helped the researcher understand the data as a whole, and in different section parts and facilitated the efficient creation of reports.

First, the researcher created a report of volunteer focus group responses organized by question. Both of the focus groups with volunteers had participants answer questions including:

- Their favorite part of volunteering with CWC
- Their motivation for volunteering with CWC
- What factors make the service a great one
- What can go wrong with the service
- What was most helpful about their volunteer training
- What they think prevents people from signing up for the service

The second volunteer focus group was asked additional questions to elaborate on issues and topics that were brought up during the first focus group with volunteers. These questions asked if they felt the volunteer empowers the clients and if they want to know whether or not the client does anything they recommend after the service.

Similarly, after the first focus group with clients and potential clients of the program, the CBSM Coordinator transcribed and coded the focus group, then determined what other questions might be worth asking. In the final two focus

groups with clients and potential clients, for example, researchers showed the clients images of light switch plate covers with various designs to encourage people to turn off lights. These designs were intended to provide something for the focus group participants to comment on and tell researchers what they liked and did not like, which was helpful to decide against marketing via light switch plate covers, as well as developing initial marketing designs preferred by focus group participants.

Findings and opportunities

Next, the researcher moved away from the question guides as the organizing structure and created a report on focus group results and recommendations organized by CWC program area. This report pulled responses from multiple questions that pertained to a given aspect of CWC's program into the same section of the report. This report-making process translated what volunteers and residents shared into feedback on specific aspects of program activity; the report moved towards ideas and suggestions that originated from, but were not explicitly suggestions by participants during the focus groups. The research findings were organized into a focus group report that summarized the findings as well as possible opportunities for CWC to modify the program. The results of the focus groups have been summarized below (see Appendix D- Focus Group Summary Report for the full report).

The focus group findings included feedback as well as opportunities for possible changes to the program to increase client and volunteer enrollment and engagement, as well as potential energy and water conservation. This feedback and the opportunities for possible changes to improve the program were organized into sections based on the CWC program area to which they would apply:

- Audit recruitment
- Volunteer training recruitment
- Volunteer training process
- Audit process (including ways to build in CBSM)
- Audit form

The content of each of the above focus group report sections has been summarized here:

1. Audit Recruitment

- Barriers to signing up for audits summary
- Possible target audiences summary
- Possible audit recruitment strategies
 - Re-brand, change names of “audit,” “auditor,” and “client”
 - Ideas for audit recruitment via promotional content
 - Possible communication channels for audit recruitment
 - Possible incentives for participating in audits

2. Volunteer Training Recruitment

- Possible target audiences to participate in volunteer training
- Possible “products” or benefits of participating in the volunteer training to emphasize when recruiting new volunteers

- Possible communication channels for recruiting volunteers

3. Volunteer Training

- Suggested improvement to the volunteer training based on focus group feedback
- Possible ways to increase hands-on training and role play to better prepare trainees for their role as CWC volunteers helping residents to be more efficient in their homes
- Continuing education and training beyond the first lessons for volunteers

4. Audit Process and Ways to Use CBSM during Audit to Increase Impact

- Leverage social norms to increase program recruitment and performance of conservation behaviors
- Listen for what clients want, what motivated them to apply, what are the benefits and barriers they see to performing conservation behaviors
- Speak to client motivations and communicate in personalized ways relevant to each client, to link conservation behaviors to their wants, goals, and benefits
- Use prompts and reminders to help clients maintain conservation behaviors over time and persist after the service is finished
- Avoid attempting to convince clients or sharing information they do not care about
- Focus on specific conservation behaviors or types of behaviors

5. Suggested Changes to the Audit Form

- Add an introduction section where the volunteer can explain the process, build rapport, ask the client about their goals and motivations, and specifically ask the client to participate
- Work on the form organization and navigation, and user experience to decrease the time and increase accuracy of volunteers during the process
- Modify the “outdoor” portion of the form
- Add a behavior section- ask what the client is willing to do to save once the Energy Coaches leave. Get commitment and offer a reminder or accountability check at a phone follow-up at a later time.
- Develop CWC-specific and engaging conservation behavior handouts to leave with clients
- Consider the possibility of asking clients for a donation when appropriate

Priority Next Steps Following Focus Groups

The priorities shifted towards implementing changes immediately following the focus groups. The first steps in modifying the CWC program based on these research findings were:

- Developing marketing material mock-ups based on opportunities identified by focus groups
- Improving the recruitment of volunteers for the next training session
- Beginning the process of integrating semantics changes as well as other changes to the audit form and process into the new volunteer training program

1. Semantics Changes

With focus group data from volunteers, clients, and potential clients in hand, program decision makers decided to change semantics for several elements of CWC's service including changing:

- “Audit” to friendlier and less threatening term “Home Energy Tune-up”
- “Auditor” to “Volunteer Energy Coach” or “Energy Coach”
- Choosing to intentionally use “client” and “resident” and no longer use “homeowner” to describe the people who are served by CWC, to make it clear that renters as well as homeowners are eligible

From this point in the project and this final report, every effort has been made to use this new terminology.

2. Marketing Material Development

Marketing materials were designed by using the focus group results to decide what materials would need to be developed. These materials were intended to build a new and stronger brand, identity, and, along with other program changes were designed to help achieve several goals including to increase:

- Numbers of clients who apply and successfully receive a tune-up
- Word-of-mouth recommendations by satisfied clients, and to some degree the numbers of volunteers who complete training
- Volunteer engagement

After selecting a professional branding and marketing agency and sharing our research findings and communication channels for materials, three mock-up designs were developed:



1. Blue



2. Green



3. Orange

Those designs went through an ad testing process where they were shown to volunteers, clients, and potential clients on three separate occasions in October 2016. There were a diverse array of opinions on the three designs, but trends did emerge that

led to one color scheme and design type being chosen for what ended up being the first round of marketing materials.

Respondents generally preferred the 1. Blue and 2. Green design over the 3. Orange design. Responses included:

Volunteer I.1, “Blue is modern, has more efficient feel. The three symbols on the blue one seem cleaner than the repeated pattern of the orange one.”

Resident 22/37, “I like the font on the blue one better than the green, maybe because it’s white lettering on a colored background and it pops. I like the way the fonts on this sign get progressively bigger [like stair steps down into a bigger size font], and a longer phrase.”

Volunteer I.4, “[the green sign] says free, which would make me curious if I saw this in my neighbors’ yard. It has the money icon again, which I think is good. I don’t love the CFL bulb icon because we are moving to LED.”

Resident 15/32/36, “If I’m looking at this [orange sign] and start at the top what does that mean, that ribbon of shapes? I like the wording first and icons at the bottom.”

Volunteer I.6, “[The] orange one reminds me of construction. I don’t like that it looks like critical home repair [which we do not do to the disappointment of some clients].”

The marketing materials that were developed in this first round of material development in October 2016 included a vehicle magnet/yard sign design, flyer template, tabling poster, postcard handout, and coupon, which have been depicted below followed by a description of the rationale behind the material.





c.



d.



e.

a. Vehicle magnet and corrugated yard sign

Designed to attach to volunteer vehicles parked at residents' homes during the tune-up, the magnets would identify why the strangers' vehicles were parked near the homes. They were also intended to provide neighbors with a contact phone number for the program and also to leverage social norms of neighborhoods and hopefully entice clients' neighbors to "keep up with the Joneses" by applying for a free tune-up as well.

Similarly, the yard sign was designed to inform neighbors the service was happening and offer contact information for the CWC to clients' neighbors. Two of the yard signs were equipped with realtor-style brochure boxes that could hold CWC information and applications in case a neighbor wanted to pick those forms up at that time.

b. Flyer Template for tune-up and volunteer recruitment:

Designed to be an easy, attractive flyer, that could grab a reader's attention with imagery and require less reading to understand the message than previous flyers designed in-house, this template was also intended to be versatile and easy-to-modify for staff and volunteers. This way, the flyer could be easily adapted to the latest volunteer training advertisement or effort to recruit clients.

c. Tabling poster:

Designed to be a large, loud 'bright and shiny' element to bring people, especially potential clients, in towards the CWC table/tent at tabling and tent events, the design was intended to attract residents to apply, with a life-size photo of all the free efficiency products. This only has the products and teasers, to start a conversation with the CWC representatives at the table/under the tent. This deliberately did not have contact information, which was reserved for smaller items that were handed out on the table once people were brought in by the sign to get more information.

d. Postcard handout template:

Based on an idea from community advisory board members to recruit clients by canvassing public housing complexes with outdoor courtyards, the postcard would be an easy piece of information that volunteers could hand out to residents who would likely be outside in the evening hours while their children played together. The post card would be left after a very short verbal explanation or pitch about the program to the residents.

e. Coupon:

Designed to look like money and encourage clients to distribute CWC's contact information and recommend their friends and neighbors apply for a tune-up, these focused on leveraging the monetary value of the tune-up as an incentive, to focus on the immediate benefits of the service, and minimize the barriers to applying and scheduling the service (including the time commitment for clients). The coupon emphasized the immediate monetary value of the energy efficiency supplies clients usually receive during the service.

Later, in 2017, a marketing committee was formed among board members, who helped decide on the creation of a new logo and color revision to commemorate CWC's 10th anniversary. Completed in February 2018, the 2018 marketing materials included an updated tabling poster (a), a yard sign/vehicle magnet design (b), a coupon (c), to reflect a more accurate accounting of the monetary value of the CWC tune-up, and a new marketing product, a video (d). These materials were the four most used marketing materials from the original 2016 designs. The updated 2018 marketing materials are depicted below:



a.



b.



c.

d. Video development and use

In response to the goals and ideas brought up during the strategic planning meetings, we prioritized creating a video. This video had multiple goals: to increase client recruitment, to increase volunteer enrollment, and to increase monetary donations to the program. We worked with a local, professional video production company to develop the video, which featured a diverse pair of our volunteers and one of our previous clients. The video was completed in March, 2018, and you can view the video at:

<https://www.youtube.com/watch?v=l30BZPCK6zI&feature=youtu.be>

We have used the video on our website and social media accounts as well as to assist with fundraising through a fundraising campaign called the Amazing Give. Through the Amazing Give CWC generated over \$5,100 of donations, a 41% increase from the \$2,270 raised by CWC in the 2017 Amazing Give. The video has also been helping to tell CWC story and impact on the CWC Facebook Page.

3. Volunteer training changes

Volunteer training changes based on observations of the training and focus group findings included:

- Building an introduction section to the training that:
 - Provides a clear context explaining why the CWC and its volunteers' work is so important both locally and globally
 - Clearly explains the process and objectives of the training
 - Gives the trainees/future volunteers an opportunity to share why they want to be involved with CWC
 - Begins to build community amongst volunteers
- Beginning the presentation sections of the training with an overview of what a Tune-up entails step by step. This can provide the framework or scaffolding that the trainees will then fill in the gaps during each section of the training.
- Organizing the passive learning presentations in the same order as the sections appear on the tune-up inspection form, to facilitate trainee follow-along and familiarity with the inspection form, the basis of a CWC Tune-up.
- Increasing the active learning sections of the training by building in more role-play and activities that help trainees practice portions of a CWC Tune-up.
- Adding a section of the training on CBSM including reasons behind putting up yard sign and vehicle magnet (leveraging social norms), why to be clear with language (re: "resident," not "homeowner"), and how to listen for client motivators then explain how recommendations relate to their wants and needs.
- Scheduling the first CWC Tune-up for new trainees on their last day of training.
- Building a sense of community among volunteers by having a celebratory BBQ at the close of the last day of training.
- Developing a CWC Tune-up "Blitz," later called a "Tune-upalooza," program, where multiple teams of seasoned volunteers and recently graduated trainees perform multiple tune-ups in the same relative geographic area at the same time. This created the opportunity for group gatherings before and after the tune-ups that were performed that day, which built camaraderie among the new recruits and seasoned volunteers, as well as with everyone volunteering that day.

4. Train-the-trainer, seasoned volunteer education

Making changes to the new volunteer training was an important part of changing CWC's program to incorporate what we heard from our focus groups, but we also needed to get the buy-in of seasoned volunteer energy coaches, who would be mentoring the new trainees on their first tune-ups. To inform seasoned volunteers of the changes we were making and to get their backing, we scheduled a train-the-trainer meeting with some of our most active volunteers. We had a potluck style dinner meeting where we presented the focus group findings and the changes to the training and program based on those findings.

This was a two-way conversation where we explained the reasoning behind the changes and heard feedback from these active and experienced volunteers. During this train-the-trainer meeting, we also work-shopped presentations for an upcoming training, making edits to the previous sessions based on focus group findings and volunteer suggestions. This was a method of both diffusing the new training and Tune-up practices as well as building buy-in from and community among volunteers. A handout for other volunteers was developed based on feedback during this meeting, which was then distributed at a

holiday event and later, a strategic planning meeting. See the Appendix E- CBSM Changes Report for Volunteers for more details on a handout that was developed to communicate the changes to other seasoned CWC volunteers.

5. Volunteer engagement

The focus group results that were presented to seasoned volunteers during the train-the-trainer meeting were organized into a one-page front-and-back summary that was available for pick up by volunteers at a volunteer appreciation and social event that was a holiday party and fundraiser for CWC in December 2016.

Hosting holiday and social events for volunteers is not directly related to energy efficiency outcomes for clients, but our focus groups with volunteers revealed the social element of volunteering to be a major reason why people became and/or remained engaged with CWC as an active volunteer energy coach. Increasing the number and activity of volunteers, as well as maintaining current volunteers' engagement levels, was critical to the success of CWC. A volunteer-based program cannot run without many volunteers who are both knowledgeable and willing to engage in the volunteer activity on a regular basis.

Since a tune-up can take from 2-4 hours, typically on a weekend day, linking available volunteers with applicants was often a significant challenge for the program administrator. To meet the continual need for trained volunteers to answer the call to perform a tune-up with so many potential barriers (especially the time commitment required to do so), increasing the social benefits of volunteering with CWC was an important strategy.

We heard during volunteer focus groups that people like volunteering with CWC for many reasons including:

- Making connections with interesting people, both other volunteers as well as clients
- Making a tangible (if small) impact on global-scale problems
- Answering a moral call to serve
- Working for economic and environmental justice by helping the poor
- Helping the local economy
- Finding it interesting and always new

Producing social events where volunteers can meet, get to know each other better, share stories, and get a sense that they are doing something important that is bigger than themselves was intended to help people get more out of their being a volunteer. Feeling connected and on a team could also help increase the likelihood that they would volunteer again. They're not just meeting up with a stranger to inspect other people's toilets and clean dust from under their fridge; they're meeting up with a friend to save the world in a small way by making a big difference for someone in need. Holiday volunteer appreciation events were scheduled to help volunteers experience that social camaraderie and feel recognized for their efforts to continue to give up weekends to help CWC help others. These events included bowling fundraisers, restaurant-sponsored fundraising efforts, holiday parties, and a post-training BBQ as well.

Another strategy for engaging volunteers was to develop volunteer roles to assist the CWC's one paid staff-person with daily operations as well as special tasks. These supporting roles could allow people who were not willing or able to perform tune-ups for clients to be involved with the program in other ways. They could assist staff with mailing out follow-up letters, modifying flyers, and posting on social media, for example. These roles allowed more people to be involved with the organization as well as provided much-needed support for the one paid staff person who essentially runs the entire CWC program.

6. Changes to the tune-ups

Changes were also made to the tune-up process itself. Some of the seasoned volunteers were already doing certain practices that have been listed below. In that case, the practices were a reminder for seasoned volunteers, with an emphasis on transmitting that information to the next generations of CWC trainees and volunteers. Those changes and practices included:

- Taking a few moments with a new client at the beginning of their tune-up to have them respond to questions on a modified pre-tune-up questionnaire. This provided the opportunity for Energy Coaches to ask residents what they knew was wrong with their home and why they wanted to get the tune-up. Asking residents these questions positioned them as the expert in their home and how they use it, and afforded the Energy Coaches a chance to listen for what the client wanted and what motivated them. These wants and motivators could then be used by the Energy Coach as the frame or benefit of the actions they recommended the client perform to conserve energy and water.
- Aside from the pre-tune-up questionnaire, a special emphasis was placed on strategies to engage residents during the tune-up in other ways. Energy Coaches were asked to encourage the client to follow along as they moved through the different steps and activities of the tune-up. Energy Coaches were also asked to invite residents to take notes on what they learned, what they would like to do, and any questions they may have that were inspired by the tune-up activities. Another best practice that was elevated to an instruction to trainees and volunteer Energy Coaches was to make an effort to periodically report back to clients with limited mobility or who were not interested in following along during the entire service. All of these strategies could help intentionally engage clients in the process.
- Another step in the tune-up where changes were made was during the wrap-up, a final conversation with the in which Energy Coaches revealed or reminded clients of the principal findings of the tune-up and offered final recommendations. Volunteers were introduced to the importance of speaking to the client's motivations and were given basic training on how to do that. During the wrap-up, Energy Coaches were encouraged to explain how their recommendations would help the client get what they wanted, whether it be to lower their utility costs, maintain their appliances, do something good for the environment, or whatever other reason they may have had for signing up for the tune-up.
- Also during this stage, Energy Coaches were instructed to review all of the actions they were able to take, and the energy-saving supplies they were able to

install and leave with the client. Emphasizing what small steps had already been taken to conserve the client money was a strategy to increase client satisfaction with the service. Rather than listing off all of the problems the volunteers were able to identify, explaining how those problems were larger than the scope of CWC's services, and that no further help was guaranteed, part of the focus of that conversation shifted to an appropriate emphasis on the changes that had been made.

- As final steps during the wrap-up process, clients were given the coupon described above in the marketing material section, which Energy Coaches explained was for the clients to give to a friend or neighbor who would benefit from the tune-up. Energy Coaches were also asked to invite the clients to commit to performing at least one action or changing one way they used their home. The clients would then be reminded of their commitment during the next modification to the tune-up process, a follow-up phone survey within a few months from the service.

The follow-up phone survey was a pilot test to investigate procedures, volunteer and staff time, and other resources (like a phone number with a local area code) needed to perform a post-tune-up check in with clients. It was also part of the evaluation of CWC impact. See the Follow-Up Phone Survey section below for more details.

7. Tools and products purchased for tune-up kits

The CWC made several purchases of tools and products in response to what participants shared during the focus groups, and the ideas that were inspired by the ideas and issues participants raised. These items were purchased on a pilot-test basis to investigate their ability to improve recruitment or the tune-up process in a specific way. The products are listed below with an assessment of their usefulness:

“Selfie” stick

This product was purchased to make attic insulation data collection easier, faster, and safer for energy coaches. Using a smart phone and this extendable phone mount with a remote photo capture button, could allow coaches to stand on low rungs of a ladder, or possibly the floor, and capture photos of attic insulation and ductwork. This inexpensive product was deemed to have a good return on investment since it helped improve the insulation and ductwork data. This data has also, more recently, helped in planning for and identifying candidates to receive a second-level home energy upgrade by CWC, a new program currently under development.

Carbon/wattmeter

Two energy use monitors, the Belkin, Conserve Insight™ (linked here: <http://www.belkin.com/us/p/P-F7C005/>) were purchased to provide clients with information on how much their appliances were costing them to use. The devices were inexpensive and provided quality information that some clients occasionally wanted to know, particularly if someone has an expensive appliance they wanted to test. Rather than making the tune-up process more efficient, though, using the devices at that time was essentially another step. They also required some basic training to be able to use. This product has been viewed as less successful in helping during the tune-up than some of the other products.

Instead, these devices have been used during the volunteer training to help illustrate the connection between watt-hours, energy costs, and appliances to trainees. As a tool for use with clients, it is more appropriate when clients have a follow-up question about how many watts an appliance is using, how much energy that's costing, and how much CO² that is contributing to the atmosphere. These devices may also be helpful during potential energy upgrade visits in the future.

Brochure box

A brochure box, like those attached to realtor signs that include information about a home for sale, was installed onto two of the yard signs that were produced. These were sometimes used at tune-ups, though no one was noticed taking information from the box. A more urban area with more concentrated, regular foot traffic near homes may see better results from a strategy like this brochure box. These signs with information boxes may also be more appropriate for tabling events where people may be more curious or interested in collecting information. The brochure box as a way of providing potential clients with information, however, was not seen to be successful.

Solar holiday string lights

As part of an effort to develop seasonal outreach and client recruitment, solar and LED string lights were purchased before winter holidays, in November of 2016. These lights were an incentive for potential clients to sign up for the service during the typically busy holiday season. There were several phone calls inquiring about how to get the free string lights, but only one new client signed up and received a tune-up explicitly because of the string light promotion. Nevertheless, these string lights were distributed as an added efficiency product to clients around the winter holidays. They were also an incentive for volunteers and other CWC stakeholders to attend a volunteer appreciation and holiday party and were given to several people who attended that event.

Thus, in a surprising turn of events, the most useful product CWC pilot tested during this grant as a way of increasing the impact of the program was a selfie-stick.

8. Partnership efforts

Focus group results and strategic planning efforts have helped hone in on the CWC story including why people like volunteering and being a part of the organization. This information has been helpful in soliciting partnerships among an expanding network of organizations, businesses, and community stakeholders. Partnership solicitation has been improved by CWC leaders focusing on what benefits volunteers get out of the volunteer training, the tune-up service, and volunteering in other ways with CWC as well as what may motivate a particular potential partner to assist CWC in a variety of ways from offering an employee to participate on the CWC board, to providing monetary and material donations. See (Table 2) for a list of the most prominent of CWC's partners during the DEED Grant period.

Table 2. CWC's Organizational Partners 2016- April 2018

American Public Power Association (APPA)	Gainesville Regional Utilities (GRU)
City of Gainesville	Gainesville Renewable Energy Center
Alachua County	Target Copy
Alachua Habitat for Humanity	Infinite Energy
Gainesville Community Ministry	WAYMAKER
We Are Neutral	Two Head Video, Inc.
Salvation Army	DUKE Energy
Catholic Charities	Satchel's Pizza
My Energy Planner	Lowe's
Power Production Management	Pure Energy Solar
Greater Duval Neighborhood Association (GDNA)	
Neighborhood Housing and Development Corporation (NHDC)	
Central Florida Community Action Agency (CFCAA)	
University of Florida's Office of Sustainability	
United Church of Gainesville (UCG)	
University of Florida Institute of Food and Agricultural Science (IFAS)	
UF's Program for Resource Efficient Communities (PREC)	
Rebuilding Together North Central Florida (RTNCF)	

9. Retrofit needs assessment

While working to build relationships with certain partners, CWC leaders were encouraged to think of ways to grow the program. These conversations inspired aspirations to increase the impact of the program including by responding to issues that came up during focus group research. Focus group research revealed a critique of CWC's program not doing enough to solve problems in clients' homes, which was identified as a barrier to positive client recommendations. One way of overcoming that barrier is to do more to improve clients' homes, through follow-ups to the CWC visit.

As a first step towards growing the CWC program to include a second phase including a home repair/retrofit program, CWC's Tune-up data were reviewed. Repair needs were counted to assess home problems that commonly needed fixing after the tune-up service ended. Knowing common needs of clients outside of CWC's scope could inform the creation of a next-phase program to meet clients' needs.

During this retrofit needs assessment, previous clients were organized by Community Redevelopment Agency (CRA) Districts, since CWC leaders were communicating with the local CRA to assist with funding the retrofits at the time. The Eastside CRA district had the most CWC clients of all three of the CRA districts under consideration, with 39

former clients. Of those 39 clients who had undergone a CWC Tune-up by the retrofit needs assessment, several common needs emerged:

- 25 clients had doors requiring weather stripping and air-gap sealing (including repairing or installing door thresholds),
- 24 clients needed more insulation in their attics and/or attic hatches,
- 23 clients had old, inefficient refrigerators or freezers they could remove or upgrade,
- 19 clients needed window screen installation, repair, or replacement,
- 17 clients needed repairs to their attic venting
- 14 needed better weather stripping around windows
- 14 needed CO2 detectors,
- 14 had old and inefficient refrigerators in their kitchens,
- 12 air handlers needed better sealing around the units,
- 12 had high-volume toilets that could be replaced,
- 11 needed leaky sinks repaired,
- 11 needed siding repaired,
- 10 had leaky toilets needing new gaskets, and
- 8 needed their roof repaired.

Along with this possible menu of needed home repairs and retrofits that could help CWC in determining which to offer with a new service, this analysis helped spur other ideas. Some needs could be addressed by other home improvement services such as GRU's LEEP^{plus} program and Rebuilding Together North Central Florida (RTNCF), CWC's fiscal sponsor, who already performs roof and siding repair as part of that program's critical home repair for low-income homeowners. They are important resources for homeowners with those issues and CWC will continue to refer clients with those specifications and needs to GRU, RTNCF and other local service providers.

Having assessed the repair and retrofit needs of former clients, CWC board members could take the next steps towards developing a potential retrofit program. Next steps included seeking estimates for both parts and service, reaching out to potential partners to help perform and/or fund the retrofits, as well as discussing the efficacy of developing training for volunteers to perform select retrofits for and with clients. In 2018, CWC initiated a pilot "energy upgrade" retrofit program for 12 previously surveyed homes, with an initial focus on increasing attic insulation.

Follow-Up Phone Survey

Follow-up survey phone calls were the method used by researchers to assess self-reported behavior change, knowledge gain, and client satisfaction with the program. A total of 82 clients who received tune-ups from June 2017 through early April 2018 were called at least once to invite them to participate in the follow-up phone survey. Of those 82 clients called, 26 surveys were completed, for a response rate of 32%. Working with people who have limited income can sometimes mean unique challenges to getting in contact with them: 10 (12%) of the 87 calls could not be completed due to phones being disconnected, or some other, larger issue like a health problem, or in one extreme case, a house being deemed uninhabitable during this period.

Phone Surveys were audio recorded and transcribed by two researchers. The transcripts were then uploaded into MaxQDA qualitative data analysis software, coded, and

counted. When appropriate, data were quantified, and then entered into Microsoft Excel, and tabulated. The results indicated most clients reported they changed their behavior in some way after the tune-up, verified clients' learning, and indicated most participants were satisfied with the service overall.

Icebreaker Questions

An icebreaker question was designed to help ease clients into responding to the phone survey questions. At the beginning of the survey data collection period, the conversational question, "Does anything stand out to you about CWC's Home Energy Tune-up? Do you remember anything in particular?" was asked first. Later, due to Hurricane Irma that moved through Gainesville, Florida September 10 and 11, 2017, survey data collection was paused and another question about the hurricane's impact was added. This second icebreaker question was designed to be sensitive to the possibility that since the tune-up, problems more acute than conserving energy and water could have impacted the clients' homes and lives. This question also helped assess whether client's homes had been damaged by the Hurricane in ways that could have impacted their utility use as well as if they had new problems that needed fixing.

Of the 26 phone surveys collected, three took place before the hurricane, 17 respondents received their tune-up before the hurricane but had their follow-up call after the hurricane, and six surveys were collected for tune-ups that took place after the hurricane had passed. Of those 17 survey respondents with tune-ups before and follow-ups after the hurricane, three had no damage or issues, 11 had minor damage (like their power out between 1-10 days), and 3 had major damage (like broken windows, roof leak).

In response to the question about what stood out to them, 13 (50%) respondents indicated one or several of the energy efficiency products were what stood out to them. These included products like the LED light bulbs, aerators, and wall outlet gaskets that Energy Coaches installed during the tune-up.

"I remember getting the light bulbs and the aerators and it really has helped, so thank you for that!" (18-01-04).

Eight (31%) other respondents shared a skill they learned (like how to clean their refrigerator coils or how to read their utility bill) or something positive about the service itself was what stood out to them. These included statements about the energy coaches being "very detail-oriented" (17-10-08) and the service being "positive" (17-10-01) and "great" (17-10-09). Five respondents did not remember anything in particular at this first icebreaker, though later in the survey those five and all of the other respondents were able to recall at least one thing they learned during the tune-up.

Behavior Change

Self-reported behavior change can be an indicator of actual energy and water conservation, and data were collected on what, if anything, clients had changed since the tune-up. Overall, respondents shared 73 behaviors they had changed, including things like:

- Installing weather stripping on doors,
- Caulking windows,
- Replacing other lights with LED bulbs,

- Turning off water when brushing their teeth,
- Unplugging appliances and electronics when not in use,
- Opening the blinds during the day instead of turning lights on,
- Turning their A/C thermostat to a higher temperature in the summer, especially when they left the house,
- Replacing an appliance with a newer, more efficient one, and
- Even unscrewing light bulbs since their new LED lights were so bright.

Of the 26 phone survey respondents, 23 or 88% shared at least one way they had changed the way they used their home to be more efficient. Twelve respondents changed 3 or more behaviors in their home and on average, respondents changed 2.8 behaviors. Three respondents or 12% of them did not change anything about their home or how they used it since the tune-up, though one of those three was reminded of their commitment to move a piece of furniture away from their A/C intake vent and indicated they would do that following the conclusion of the phone call. The distribution of behaviors respondents indicated they had changed since their tune-up (Figure 1).

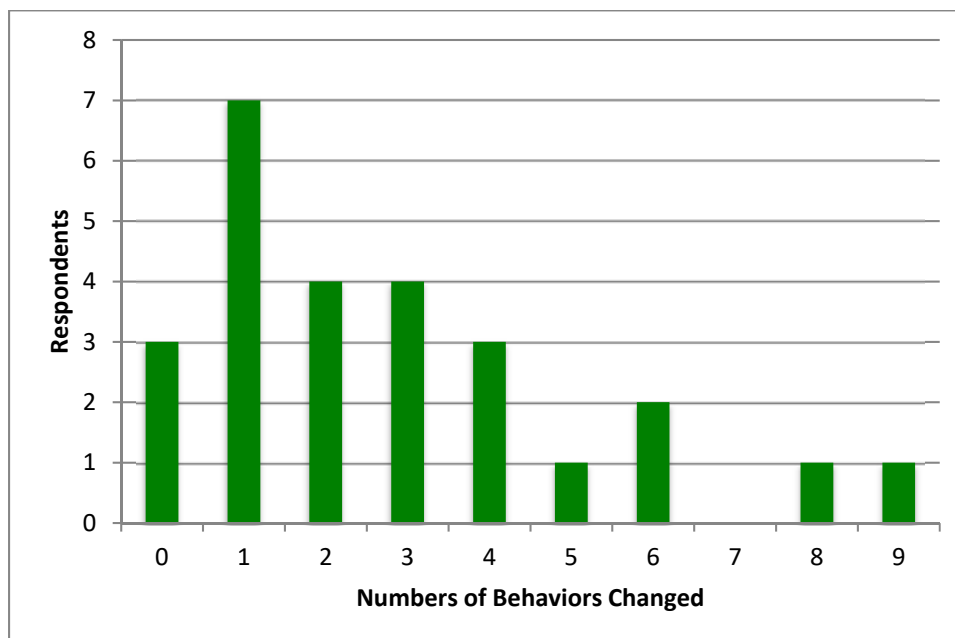


Figure 1. Number of self-reported behaviors changed by respondents

Client knowledge increase

To assess client knowledge gain from the tune-up, clients were asked to explain what they learned about six topics. Overall, 26 or 100% of interview respondents indicated they had learned about at least one of the topics and described what they had learned about the topic. Most respondents (19 or 73%) could explain what they had learned about 3 or more of the 6 topics. Figure 2 shows the distribution of how many new things respondents were able to explain having learned about.

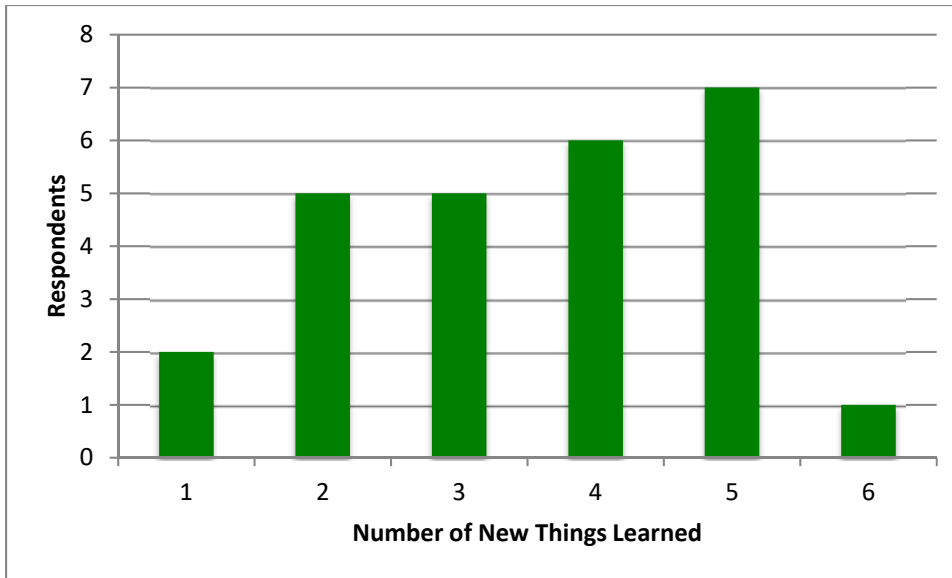


Figure 2. Number of items covered during the tune-up respondents explained

Responses to the six topic-based questions that assessed respondents' knowledge gain from the tune-up and the number and percentage of responses can be found below (Table 3). In this table, percentages have been rounded to the nearest whole number, so the total percentage for each response category is 101, not 100%. This table reveals that most respondents (22 or 85%) learned why LED light bulbs were best for their home and how to stop wasting electricity when no one is using it. The least number of respondents were able to explain how to extend the life of their most expensive appliances (8 or 31%). Half of clients already knew how to turn off the water to their home in an emergency, like if a pipe breaks (12 or 46%), which was the most-previously-known of all the topics asked during the follow-up survey.

Table 3. Responses to questions assessing client knowledge gain

Question: If you did learn something, please tell me what you learned about the following topic...	Yes N (%)	No N (%)	Already knew N (%)	Other details/ example response (Participant Code)
<i>How temperature setting affects your utility bill</i>	14 (54%)	3 (12%)	7 (27%)	2 (8%) didn't have A/C so this was not covered
<i>Why LED light bulbs are best for your home</i>	22 (85%)	2 (8%)	2 (8%)	"They're very much better...on the inside of the house...they don't get so hot and they're brighter." (11-17-01)
<i>How to stop wasting electricity when no one is using it</i>	22 (85%)	1 (4%)	3 (12%)	"When you leave something plugged up and you're not using it, it's still using the wattage from the electricity." (05-17-08)
<i>How to extend the life of your most expensive appliances</i>	8 (31%)	18 (69%)	-	"Cleaning the coils under the refrigerator, things like that." (10-17-05)
<i>Which appliances are costing you the most to use</i>	16 (62%)	9 (35%)	1 (4%)	"I don't recall talking about that. They may have, but I don't recall." (11-16-07)
<i>How to turn off water to your home in an emergency (like if a pipe breaks)</i>	10 (38%)	4 (15%)	12 (46%)	"I already knew how to do that" (06-17-01)

Client satisfaction

Improving client satisfaction was an important means of growing the program. A happy, satisfied client is much more likely to recommend the service to their friends and other people in their networks of relationships. This was arguably especially important in the close-knit communities, like the Duval neighborhood, that CWC has served. During the follow-up survey we explicitly measured client satisfaction with three questions about the Energy Coaches themselves.

- When asked "Did Energy Coaches seem knowledgeable and able to answer your questions?" most all respondents (24 of 26 or 92%) indicated yes, the Energy Coaches were able to help them better understand their home and how to save.
- When asked "were Energy Coaches respectful of you and your home," 26 of 26 or 100% of respondents indicated yes, they were respectful of them and their home.

- Similarly, 26 of 26 or 100% of respondents agreed that coaches were knowledgeable and could answer their questions when asked, “Did the Energy Coaches seem knowledgeable and able to answer your questions?”

Improvement opportunities

Another indicator that many clients surveyed were satisfied with the program was in responses to the question, “is there anything that could have made your experience of the tune-up better? What could we improve?” most respondents (17 or 65%) did not offer any critical or constructive feedback.

Nine respondents made suggestions on at least one way their experience of the tune-up could have been improved including:

- Being clear about the tune-up possibly taking as many as four hours,
- Asking clients’ permission for every, even minor, change to their home (like swapping out their bathroom aerators with a lower-flow aerator),
- Providing two low-flow shower heads to clients with two bathrooms,
- Having LED bulbs compatible with dimmer switches when clients have those,
- Sharing information about peak-use times of the day clients can avoid running appliances to save money on their utility bills,
- Giving clients a copy of the inspection form or tune-up findings at end of service rather than mailing a copy to them later (which is currently mailed to clients between 4-10 weeks following the tune-up),
- Collecting follow-up survey feedback over the phone rather than asking clients to complete a paper survey and mail it back in, and
- Having rewards for clients such as discounts on purchasing efficiency products to make it easier for them to follow through with tune-up recommendations.

Information sheet request

In an effort to assess how best to provide clients with reminders or other information on energy and water conservation, a question was asked about how they would prefer to receive information sheets in the future. This question was added after the first two phone interviews were conducted so the two initial respondents surveyed did not answer this question. The response of the 24 respondents who were asked the question was overwhelmingly that people would like to read fact sheets in the future (22 of 24, 92%) and would prefer to have them mailed to them by way of traditional US Mail (21 of 24, 88%). Only one (4%) of the 24 respondents wanted to receive fact sheets by electronic mail (email). This information suggests that CWC’s current audience of clients may prefer physical rather than electronic mail as a communication method.

Client comfort

One of the impacts of CWC’s services is what volunteers referred to as, “helping clients be more comfortable in their home.” In an effort to collect information about the subjective impact of increased comfort, a question about the tune-ups impact on client comfort was asked.

Of the 26 respondents, 19 or 73% indicated they were comfortable in their home or that they felt the tune-up helped make them more comfortable in their home.

"[The tune-up] helped me to relax a lot more, a lot more. Like I said it dropped me down to [a utility bill that is] \$200 less" (17-11-01).

Seven or 27% of other respondents indicated no change in their level of comfort, though many of those did indicate they were more knowledgeable but not more comfortable.

"I would say more aware, not more comfortable. We didn't make major changes, but it did just make me more aware for the things that I would probably just overlook." (17-09-02)

Other factors that could impact energy use since the tune-up

Clients were also asked a series of questions designed to assess other variables that could impact their utility and water use after the CWC Tune-up. These questions included if they had made home improvements or suffered damage to their home; removed, replaced, or added new appliances; and if any appliances had stopped working since the CWC Energy Coaches visited. A complete list of responses is below (Table 4).

Table 4. Factors that impact energy and water use other than the tune-up

Question: Since the tune-up have you...	Yes N (%)	No N (%)	Changes
<i>Made any home improvements (like new windows)?</i>	3 (12%)	23 (88%)	One client had air conditioning ducts repaired. Another client caulked their windows since the tune-up.
<i>Removed any appliances?</i>	1 (4%)	25 (96%)	One client removed an extra refrigerator.
<i>Had any appliances stop working?</i>	4 (15%)	22 (85%)	One client's washer and another's dryer stopped working. A third client's garbage disposal stopped working. Another had their HVAC stop working. None had fixed them by the time of the survey.
<i>Replaced any appliances?</i>	4 (15%)	22 (85%)	One client replaced both their washing machine and water heater. Another two clients replaced their refrigerator. One other client replaced their microwave.
<i>Gotten any new appliances?</i>	1 (4%)	25 (96%)	One client got a new freezer.
<i>Had the number of people living in your home change?</i>	2 (8%)	24 (92%)	Two clients had changes in the number of people living in their home since the tune-up at the time of the survey. One had their grandkids stay three nights per week, and the other began housing two of their grandkids full-time.

Most clients (16 or 62%) indicated there were no changes to their home, their appliances, or the number of people living in their home since the tune-up occurred. Two of the 26 clients surveyed had three or four changes to their home, appliances, and occupant numbers. Collecting this type of data may help explain some of the variation in utility and water savings across households after they receive an energy efficiency service.

Evaluation of marketing materials and program changes

The goals of the marketing materials and program changes were to increase: the numbers of clients who apply and successfully receive a tune-up; word-of-mouth recommendations; numbers of volunteers who complete training; and volunteer engagement. To evaluate the performance of the marketing materials and program changes in achieving those goals, CWC's internal metrics were used. These data included the numbers of tune-ups performed, how clients heard about CWC, how many new volunteers were trained and successfully volunteered, and numbers of volunteer hours.

Number of CWC tune-ups

Between the launch of the CBSM Marketing Changes in October 2016 to April 2018 (when the DEED grant period was coming to an end), CWC volunteers performed 232 CWC Home Energy Tune-ups. There was, therefore, a 35% increase in the number of Tune-ups performed in the 18 months since the CBSM Marketing Changes compared to the 17 months prior for which we have data. It should be noted that CWC hired a full-time staff person in August 2016, who also contributed significantly to the program gaining traction and assisting more clients during this period.

When broken out into six-month evaluation periods from around the point CWC hired a full-time staff person through the end of the DEED Grant period, the number of tune-ups performed seems to have remained about the same (Table 5).

Table 5. Number of CWC tune-ups performed

<i>Evaluation Period</i>	<i>Number of CWC Tune-ups Performed</i>
<i>May 2016- Oct. 2016 (6 months)*</i>	52
<i>Nov. 2016- Apr .2017 (6 months)</i>	60
<i>May 2017- Oct. 2017 (6 Months)</i>	49
<i>Nov. 2017- Apr. 2018 (6 Months)</i>	56

*Before CBSM marketing changes

These data may indicate that the marketing materials developed during this project did not increase the total number of tune-ups performed. The average number of tune-ups performed during these four periods was 54.25 per six months and may also indicate that around two tune-ups per week is CWC's maximum with the current level of staffing. This theory is corroborated by the fact that at some points during the second year of the

grant, there was a waiting list of clients who had already applied and wanted the service, despite volunteer enrollment numbers increasing over the course of the grant period.

Volunteer enrollment and engagement

For reporting sake, the evaluation of training changes has been divided into four six-month periods. During this 24-month period of time, data were tracked to evaluate the success of volunteer training changes and the impact of those changes on numbers of volunteer hours logged, an indicator of program impact.

The first six-month evaluation period started from the beginning of the grant's research period in May 2016, and lasted through the research and development phase of the CBSM changes, in October 2016. This is the reason the periods were each six -months long, which provides a consistent length of time to assess volunteer hours during that period of time.

In general, volunteer engagement increased. The fall 2016 training was the first class of new volunteers who was informed of CBSM and changes to increase client enrollment and volunteer participation. From the fall 2016 training through the fall 2017, there was a general trend of the numbers of new trainees increasing (Table 6). Also during this period, all of the newly trained volunteers performed at least one tune-up or volunteered substantial hours in another way for the program by the start of the next CWC new volunteer training. The last training on this list, spring 2018, seems to show a decline in the percentage of volunteers who followed through with performing a tune-up after they completed their training. This training, though, took place in April, only one month before the completion of the evaluation included in this report, so there is still time for the remaining 11 volunteers who have yet to perform at least one tune-up to do so.

Table 6. Volunteer trainees and number and those who performed at least one tune-up and/or assisted the program in other ways

<i>Date</i>	<i>Number trained</i>	<i>Number (%) who performed 1 or more tune-ups</i>
<i>Spring 2015*: Mar. 31; Apr. 9; Apr. 12</i>	12	10 (83%)
<i>Fall 2015*: Oct. 29; Nov. 5; Nov. 14</i>	17	16 (94%)
<i>Spring 2016*: Apr. 7; Apr. 14; Apr. 16</i>	16	13 (81%)
<i>Fall 2016: Oct. 13, Oct. 18, Oct. 22</i>	16	16 (100%)
<i>Spring 2017: Mar. 14, Mar. 16, Mar. 18</i>	17	17 (100%)
<i>Fall 2017: Oct. 5, Oct. 12, Oct. 14</i>	30	30 (100%)
<i>Spring 2018: Apr. 12, Apr. 19, Apr. 28</i>	23	12 (52%)**

*Before DEED Grant period.

** As of May 2018.

The number of volunteer hours logged during the grant period also showed a general of increasing trend (Table 7). The highest number of volunteer hours was from May 2017 – October 2017, in which there was the largest volunteer training, which accounted for approximately 525 volunteer hours, and the 2017 strategic planning meeting took place, which accounted for just over 65 volunteer hours.

Table 7. Volunteer hours logged during the DEED grant period

<i>Evaluation Period</i>	<i>Number of Volunteer Hours Logged</i>
<i>May 2016- Oct. 2016 (6 months)*</i>	1001.64
<i>Nov. 2016- Apr .2017 (6 months)</i>	1251.25
<i>May 2017- Oct. 2017 (6 Months)</i>	1666.5
<i>Nov. 2017- Apr. 2018 (6 Months)</i>	1,441

*Before CBSM marketing changes

How clients heard about CWC

During the Tune-up application process, clients were asked how they heard about CWC. Those responses were collected, grouped into larger categories when appropriate, and counted. Data on how clients heard about CWC date back to May 2015. Those records indicate there were 111 CWC “Audits” that were performed during the 17-month period from May 2015 to September 2016, just before CBSM changes were implemented based on DEED Grant focus group research.

After the CBSM marketing changes were implemented, some of the ways that clients who signed up for the service heard about it changed. The new coupon, which people either received from a friend or picked up from another partnering organization, was specifically cited frequently (10% of responses) as a new source, along with flyers (3%), presentations (2%), and yard signs (1%) and Facebook posts (.5%). Word of mouth recommendations (recorded when clients indicated they heard about CWC from a friend, but did not mention other marketing materials) increased by 6%, which provides some indication that efforts to improve client experience and encourage their positive referrals were working to some degree. Newspaper citations increased by 8%, and canvassing increased by 1% (Table 8).

Table 8. How clients heard about CWC before and after CBSM marketing changes

Source of information	Before changes		After changes		% change
	Number	Percent	Number	Percent	
Referral by Partner	54	49%	64	28%	-21%
Tabling	26	23%	50	22%	-1%
Word of Mouth	14	13%	45	19%	6%
Coupon	-	-	24	10%	10%
Newspaper	-	-	19	8%	8%
Canvassing	5	5%	13	6%	1%
Flyer	-	-	8	3%	3%
Presentation	-	-	4	2%	2%
+Yard Sign	-	-	2	>1%	>1%
Other	-	-	2	>1%	>1%
Facebook Post	-	-	1	>.5%	>.5%
Unknown	3	3%	-	-	-3%
Recruited during other audit	2	2%	-	-	-2%
Total	111	100%	232	100%	

For both pre and post time periods, the highest percentage of clients were referred to CWC from another partnering organization and the second highest percentage of clients heard about the service from a tabling event. This underscores the importance of partnering with other community and service organizations as well as tabling.

Overall, there are indications that the marketing materials, other CBSM changes, and of course, the tireless efforts of CWC staff, core volunteers, and partners over the course of the DEED grant period have helped increase word-of-mouth recommendations, numbers of volunteers who complete training, and volunteer engagement. While the numbers of clients who successfully receive CWC's service has increased compared to the beginning of the program, the number of tune-ups remained around the same throughout the DEED grant period. With continued effort, strategy, and monitoring, the program can continue to provide quality service to clients in need, but additional paid staff would be required to significantly increase tune-up numbers.

Webinar

A webinar presentation was developed by CWC DEED grant partners, hosted by the University of Florida Public Issues Education (PIE) Center. The 45-minute webinar presentation took place on Monday, April 30 from 2:00 – 3:00 pm Eastern Time. An archived recording of the webinar can be accessed using the web address linked here: <https://www.youtube.com/watch?v=bxjl4N-DexY>.

Best Practices Manual

A best practices manual was also created as another deliverable of the DEED Grant. This manual, titled *Saving Money and Resources Together: Best Practices for Using Social Research to Improve Non-Profit Service Organizations*, was intended to be a resource for weatherization programs and other non-profits interested in improving through social research. It covered some best practices for conducting applied social research, CWC's experiences using CBSM in the context of a community weatherization non-profit, and the marketing materials developed based on the results of social research (see Appendix F).

MEASUREMENT AND VERIFICATION

Project Goals and problem to be addressed:

This component of DEED grant activities was carried out by researchers at the University of Florida's Program for Resource Efficient Communities (PREC), to develop rigorous quantitative measures of the impact of CWC tune-ups on energy, water, and monetary saving following tune-ups. PREC compared monthly household level water, natural gas and electricity consumption for CWC homes for 12-month periods before and after their audits/tune-ups to determine whether they received measurable benefits from their participation in the program, and if so, to quantify the savings. We wanted to know if many or just a few homes experienced savings, and if the savings were roughly consistent from year to year. We wanted to investigate whether homes continued to have savings over time. Finally, we wanted to know whether the revised tune-up approach and social marketing had an impact on the program savings.

Activities and Methods:

CWC audits and tune-ups from four different periods were analyzed, beginning in 2010. The first evaluated audits from 2010 to 2015 as a group. Annual analyses were done for 2016 and 2017. The persistence of savings in homes that were audited in 2010 through 2012 was also investigated to see whether those homes continued to have savings in 2016.

Changes in household energy and water use were calculated as described below. Cost savings were assessed for electricity, natural gas, water and wastewater services based on GRU's rate structures for FY 2017. The same rates were used to calculate all cost savings, to provide consistency in comparisons of cost savings over time, without the need to adjust for differing rates.

Energy analysis

Records from the entire GRU residential service area were used to prepare Community Baselines for each period against which the performance of individual homes could be assessed. The purpose of a Community Baseline is to adjust energy use for changes in weather so that you can make comparisons over time.

Total energy use was calculated for each home in equivalent kilowatt-hours (ekWh) by converting monthly natural gas usage to an equivalent amount of energy in KWH and combining it with monthly electricity consumption. The community baselines and savings percentages were based on this combined energy measurement rather than separate electric and natural gas calculations. Electric and natural gas usage were combined into a single ekWh value for homes with both power sources. Changes in energy use were then distributed back proportionally to calculate monthly bills for each.

Because all homes in the community experience the same weather, baselines allow projections of energy use that reflect variable heating and cooling needs from year to year. Plots of annual community baselines for energy use illustrate typical shifts due to weather variability from year to year, affecting energy demands for space heating and cooling.

To visualize a community baseline, the annual energy use for all households can be ranked - from the smallest to largest and plotted along the x-axis, one after another. Since there are between 30,000 and 40,000 single-family homes, they appear as a smooth curve. In some years, energy use is more than in others, causing shifts in the baseline (Figure 3).

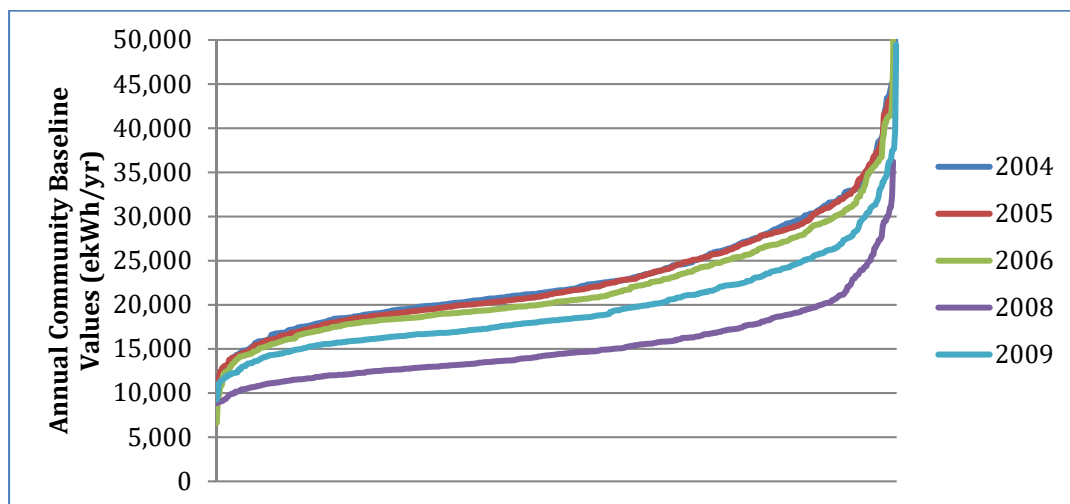


Figure 3. Example community baseline values for energy use.

The characteristics of each home (their heated area, age, whether they have natural gas, and number of bedrooms and bathrooms) were used to fit a sum of least squares regression equation. In turn, that equation was used to predict each home's energy use for that particular year. Individual households will rarely use precisely the predicted amount of energy, and the percent difference between a home's predicted and actual energy use represents that home's performance. Groups of homes have been shown to maintain their relative position above or below the baseline from year to year, unless changes are made to the energy efficiency of the homes.

If a household used 15% more energy than was predicted by the baseline equation in one year, we would expect them to continue to use 15% more in the following year. However, energy efficiency improvements to the building or the occupants' behavior could perhaps result in the home being only 5% or 10% above the baseline in the

following year. The percentage change between actual and expected energy use from the pre to post analysis period would be equal to the energy savings for that home. Paired values for actual energy usage and expected energy consumption for each of the audited homes illustrate the saving from these CWC homes (Figure 4). Actual and expected energy use were plotted vs. heated area on the x-axis. Best-fit lines for each set of points show the general trend toward increased energy use with larger heated areas. While a great deal of scatter occurs and not all homes save energy, the overall group used less energy than expected during their post-audit period, seen as the lower best-fit line (blue) for actual energy use.

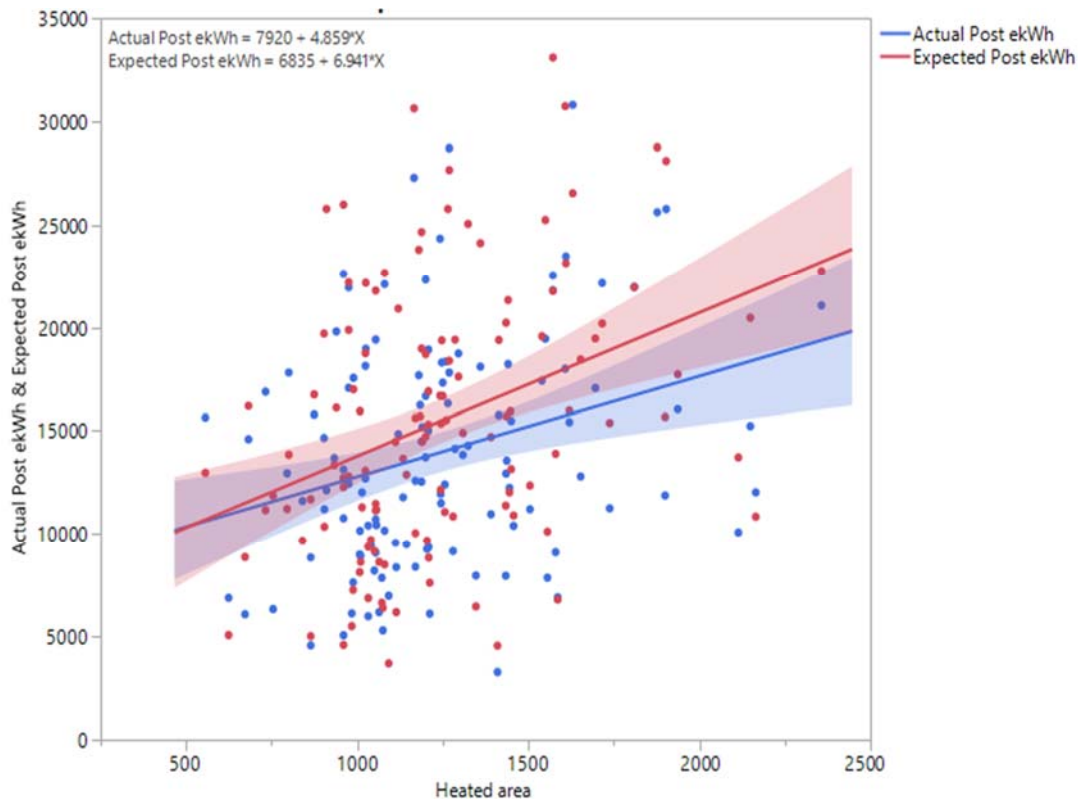


Figure 4 Energy savings as the difference in expected and actual usage in the post-audit year, January 2010 - September 2015. Shaded areas represent the 95% confidence intervals for the best-fit lines.

CWC audits were grouped by calendar year quarters for analysis. For the 12-month periods preceding and following a particular audit quarter, each home's energy use was aggregated. Community baselines were prepared for the appropriate pre-audit and post-audit periods. Changes in the percent variance between predicted and actual energy consumption during the pre-and post-audit periods were used to estimate the energy effectiveness of the CWC audits.

At the end of the grant period, not enough time had passed after the 2016 - 2017 tune-ups to do a full 12 months post-analysis. Therefore, pre- and post- baselines were created for 6-month periods and performance was compared to a larger control group of similar homes.

Water analysis

Water savings were estimated from utility-metered total water consumption, but none of the CWC homes had either separate irrigation meters or reclaimed water. This usage was assumed to be almost exclusively indoors, as most of the audited homeowners appeared to use minimal outdoor irrigation. While outdoor irrigation can be weather dependent, this analysis assumed that indoor potable water consumption was independent of weather fluctuations. This assumption allows households' water use to be directly compared for the 12-month periods before and after each audit.

While it is the case that some homes in each analysis have water consumption high enough to include outdoor usage, the relative numbers of these homes are fewer than would be expected in the full community. Community Baselines for water use over the entire area would be less accurate for non-irrigating homes. Another approach would be to select similar comparison groups of mostly non-irrigating homes. This has not been done here, but it may be considered for future analyses.

Results, achievements and important findings:

2010-2015 CWC audits

Not all homes that have participated in CWC audits during this period were able to be included, as some have utility providers other than GRU, for whom data were not available. Other homes' utility data were incomplete over their full pre- and post-audit periods or we were unable to match them with property appraiser data. Mobile homes and apartments were also not included in the analysis. The remaining group of 124 single-family detached homes that had had audits between January 2010 and September 2015 formed the analysis group.

Energy savings

For the full analysis group of 124 homes, the mean annual energy savings was 1,660 kWh. This represents an overall reduction of about 10.6% from their expected energy usage. One quarter of participants had no energy savings (they experienced increased energy use of at least 640 kWh during the post-audit 12 months), and the quarter of participants with the greatest reduction in consumption saved about 3400 kWh or more. Median cost savings for the entire group was \$153 (vs. the mean savings of \$255) per household. A group of homes with large annual savings caused the relatively large difference between these two values: 28 homes showed expected savings greater than \$500 each, while 10 homes' savings exceeded \$1,000 and 5 homes exceeded \$1,500 in savings.

Sub-groups based on participation in other retrofit programs

A significant number of CWC audited homes (81 of 158 GRU audits) also participated in GRU's LEEP program and another 20 received energy efficiency rebates for appliances such as solar hot water or energy efficient refrigerators.. The final analysis group contained 70 homes that also participated in one of these programs, complicating the task of separating the effects of the CWC audits alone.

However, in many of the homes that had LEEP retrofits, the work was done in 2008 or 2009, well before the analysis period used for evaluating their CWC audits. Energy savings due to these programs would already be reflected in the pre-audit periods. Therefore, this group of participants was further split into two groups: those that had retrofits *before* and those that had retrofits *after* their CWC audits. Savings seen by those with retrofits after the audits were almost double the savings of those with retrofits before the audit.

Similar results would be expected for homes that only had audits and those with retrofits before the analysis period. Their savings should reflect the effect of the CWC audits alone. That is in the range of what was found, although there was a large difference between the mean and median values for the audit only homes. In this case, a few homes with high savings raised the mean. On average, the group that had retrofits well before their audits saved an additional 8% in energy consumption after the CWC audits, which falls between the average and median savings that occurred in homes that only had CWC audits.

The 40 participants that had retrofits done after their CWC audit achieved the greatest savings in the post-audit year, calculated at an average of 1884 ekWh, saving about \$300 per year per household. For this group the mean and median savings were much closer than the other sub-groups, indicating less influence of homes with exceptionally high savings. In the results summary (Table 9), the percent energy and cost savings for each sub-group are expressed as a percentage of the mean and median values for all participants, rather than their respective sub-group means and medians.

Table 9. Effect of retrofit programs on energy usage and utility cost savings of audited homes

Program Description	N homes	Energy Savings ekWh		Percent Energy Savings		Utility Cost Savings		Percent Utility Cost Savings	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Audit only	51	1816	751	12.9%	5.8%	\$ 314	\$ 214	15.2%	10.4%
Retrofits before audits	33	1136	573	8.1%	4.4%	\$ 225	\$ 134	10.9%	6.5%
Retrofits after audits	40	1884	1779	13.4%	13.6%	\$ 305	\$ 225	14.7%	10.9%
All participants	124	1657	965	11.8%	7.4%	\$ 287	\$ 210	13.9%	10.2%

Water Savings

GRU supplied water to 113 homes of the homes in the analysis group. In the 12 months prior to their audits, they used an average of 64,000 gallons, dropping to 58,000 gallons in the post audit year. The mean savings was therefore 6200 gallons. The median household saved 2,100 gallons over the year.

There was a wide range in water use and savings, with those at the higher end of the spectrum (using more than 100,000 gallons in a year) having correspondingly large savings (Figure 5). At the opposite end, those with initial usage of less than 20,000

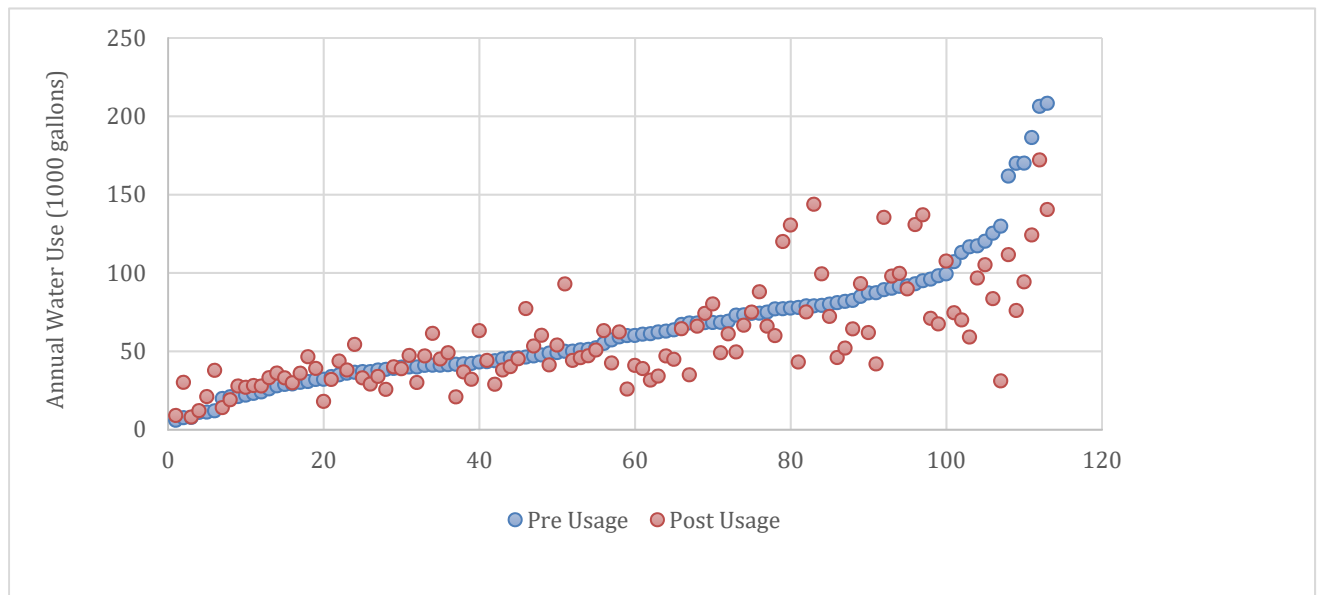


Figure 5 Paired pre- and post- audit water usage, pre-usage ranked low to high

gallons increased their usage in the following year. Overall, 26 homes decreased their water use by more than 20,000 gallons, and 12 homes increased their water use by at least 20,000 gallons. Cost savings from water and wastewater were estimated to average \$25 per year.

Total utility cost savings were calculated for electricity, natural gas, water and wastewater. The estimated energy savings (in kWh) were split between electricity and natural gas in proportion to their annual usage. Forty-two homes had increased costs in the 12 months after their audits and 94 homes had utility cost savings (Figure 6).

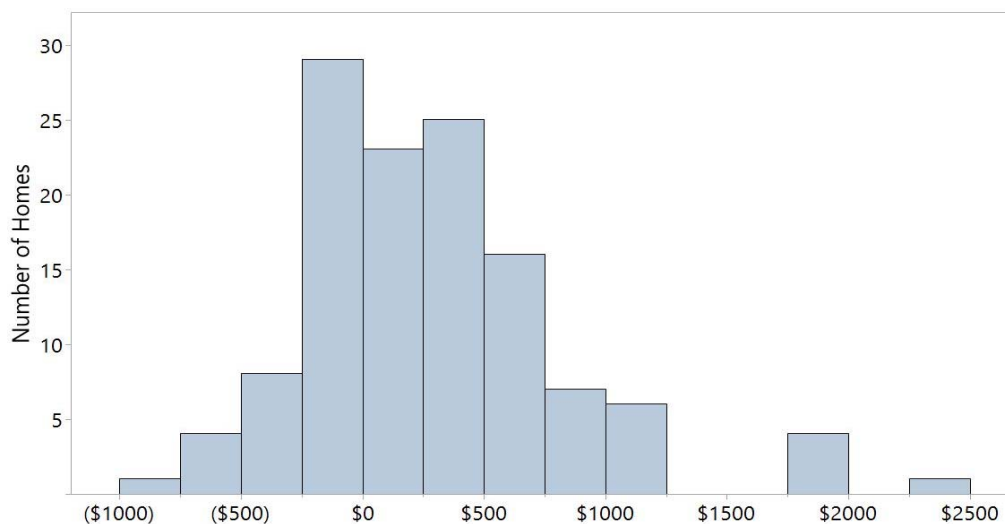


Figure 6 Distribution of estimated annual utility savings (electricity, natural gas, water and wastewater) per household, 2010-2015

Duval neighborhood vs. other CWC audits

Residents of the Duval neighborhood have been well represented in the CWC's client base over the years. A total of 103 homes were audited there through 2017. A comparison of their building characteristics to other homes shows that they were a little smaller, with lower energy use, but higher initial water use (Table 10).

Table 10. Comparison of audited home characteristics

Location	N Homes	Owner Occupied	Year Built	Heated Area (sqft)	Home Just Value (2010)	Water Use (Gal)	Energy Use (ekWh)
Duval	103	88%	1967	1230	\$76,100	58,600	15,800
Other GRU	131	81%	1965	1320	\$96,300	56,600	21,600

A smaller subset of the Duval homes were used in the previous analysis covering the years 2010-2015. They were considered separately to see how their performance compared to other audited homes in the community. The sub-group contained 55 audits, some of which also participated in other GRU efficiency programs. Specifically, 22 homes participated in LEEP and six received high efficiency refrigerators, room AC or had attic improvements. However, 18 of these interventions occurred before the CWC pre-audit analysis period, so their effects would already have been felt before the CWC audit. They were considered separately and as a group. The results show higher savings for Duval homes than the overall average (Table 11). As before, we suspect that at least a few of the homes in the audit only group also had more major interventions of which we are unaware.

Table 11. Duval audits 2010-2015 mean savings summary

Program Description	N homes	Energy Use Savings (ekWh)	Percent Energy Savings	Water Use Savings (gallons)	Percent Water Savings	Utility Cost Savings	Post Utility Cost
Audit only or retrofit before audit	44	1,816	12%	8,000	12%	\$ 280	\$2,052
All Duval Audits	55	1,141	8.7%	6,600	9.6%	\$ 329	\$2,058

A distribution of energy savings shows that the majority of homes (39 of 55) saved between 0 and 7500 ekWh, with four others saving larger amounts (Figure 7). Seventeen of the homes had increased energy usage during the post analysis period.

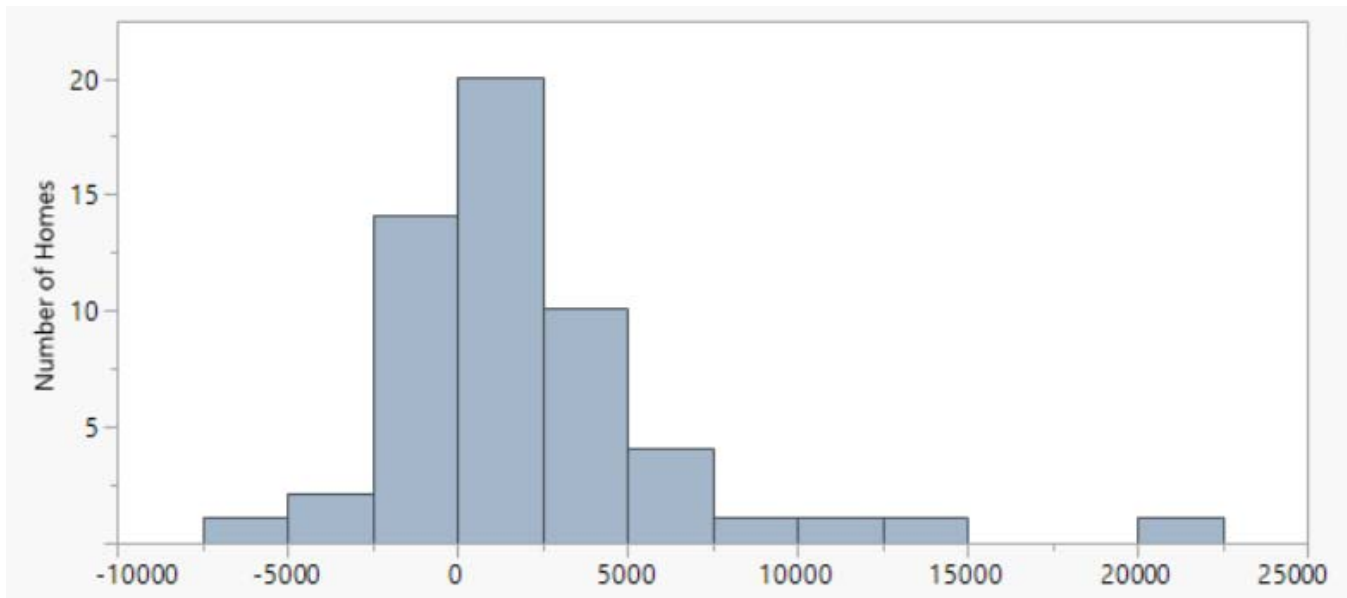


Figure 7 Distribution of measured energy savings (ekWh) in Duval audited homes, 2010-2015

Results from 2016 audits

Fifty-nine audits were done during the period October 2015-September 2016 (GRU's FY 2016). Of those, ten were either not single-family detached style buildings or had incomplete utility records and were omitted, leaving 49 homes in the analysis group. The procedures were the same as previously described.

A distribution of the energy savings shows that similar numbers of homes had small increases and decreases in energy use, but that more homes had larger savings (Figure 8). Twenty-five percent of homes saved more than 2,500 ekWh, while at the other end of the spectrum, 25% of homes increased their consumption by 600 ekWh or more.

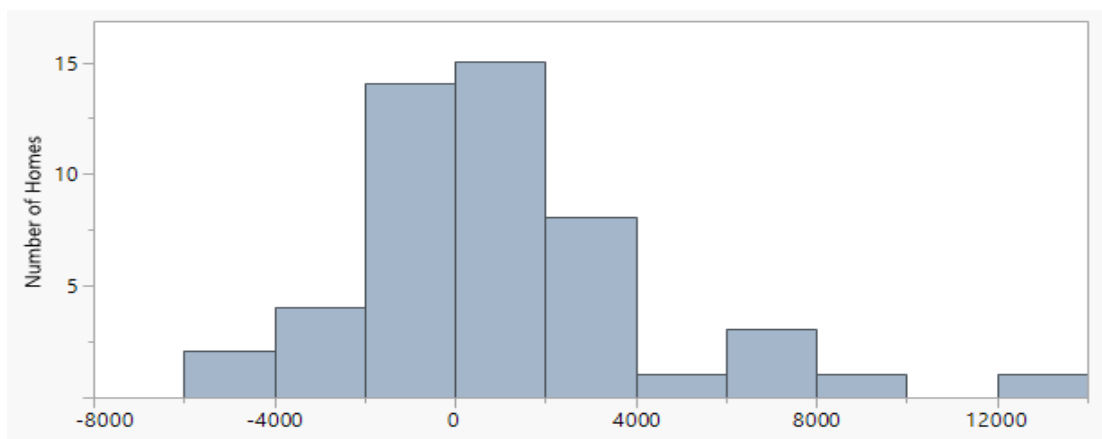


Figure 8 Distribution of measured energy savings (ekWh) in 2016 audited homes

Water usage can be highly variable, both between households and over time. As a group, the 2016 homes exhibited no mean water savings. These homes had lower initial water use than the mean of previously audited homes, averaging only about 3,400 gallons per month, vs. about 5,400 gallons per month previously. Therefore, it may be difficult for them to make substantial savings to indoor potable usage. The distribution of

water savings indicates that, while many homes did make small savings, they were offset by a group of homes with increases exceeding 10,000 gallons annually (Figure 9).

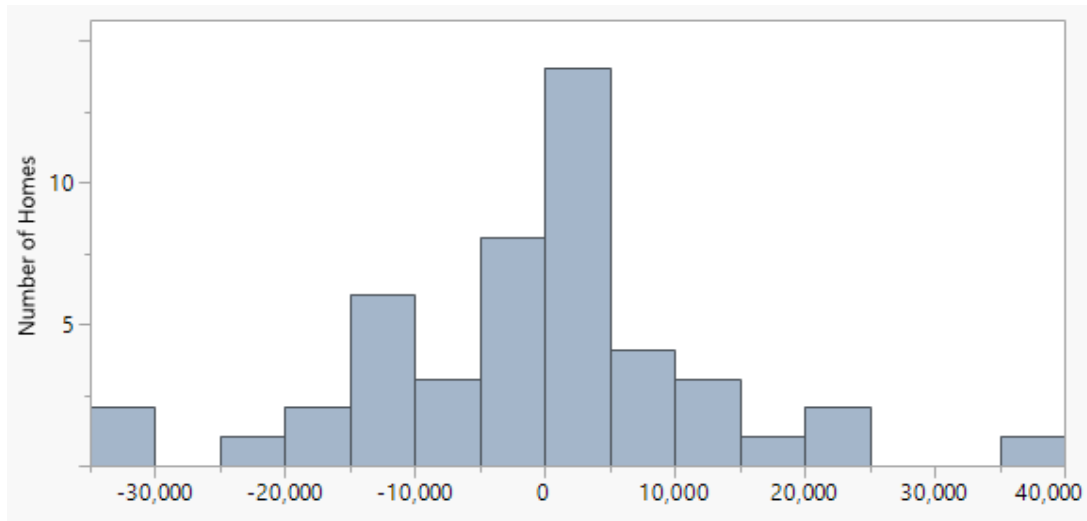


Figure 9 Distribution of water savings, gallons per year per household, FY 2016

CWC volunteers routinely check the size of residents' GRU supplied garbage carts and give information on alternative sizes and costs, and recommend that residents recycle waste (a free service) and reduce the size and monthly cost of their garbage carts. The CWC has not followed up directly to find out how many residents actually made a change, but an estimate was made based on data available on-line from the Gainesville Open Data Portal and CWC's audit forms. The results showed that the percent of homes with the largest size garbage cart (96 gallons) dropped from 28% to 13% of the audited homes, and the percentage with the smallest size (20 gallons) increased from 10% to 27%. The average annual cost for a garbage cart dropped from \$319 to \$282. The average saving for the 45 households that downsized was \$37 per year. Averaged over all participants, the mean savings was \$12.50 per home.

Energy consumption and savings show mean and median values in a similar range to the previous homes that had only audits or other retrofits before their audits. The total utility bill savings included the savings estimate of downsizing garbage carts as well as electricity, natural gas, water and wastewater services (Table 12).

Table 12. Summary of FY 2016 audit results

2016 Audited Homes	Total Energy (ekWh)	Percent Energy Savings	Water (gallons)	Percent Water Savings	Utility Bill Savings	Percent Utility Savings¹
Post-audit Mean Usage	13,095	-	41,700	-	-	-
Median Savings	768	5.9%	1,000	2.5%	\$ 97	4.4%
Mean Savings	1,141	8.7%	(500)	-1.2%	\$ 235	10.8%

¹ Percent utility savings are calculated as a percentage of the estimated post-analysis costs

The median home saved \$97 over the year, and the mean savings were \$235. These represented 4.4% and 10.8% of the average annual post-audit utility bill of \$2182. The best performing quartile saved \$500 or more and the worst performing quartile had utility bill increases of \$53 or more (Figure 10).

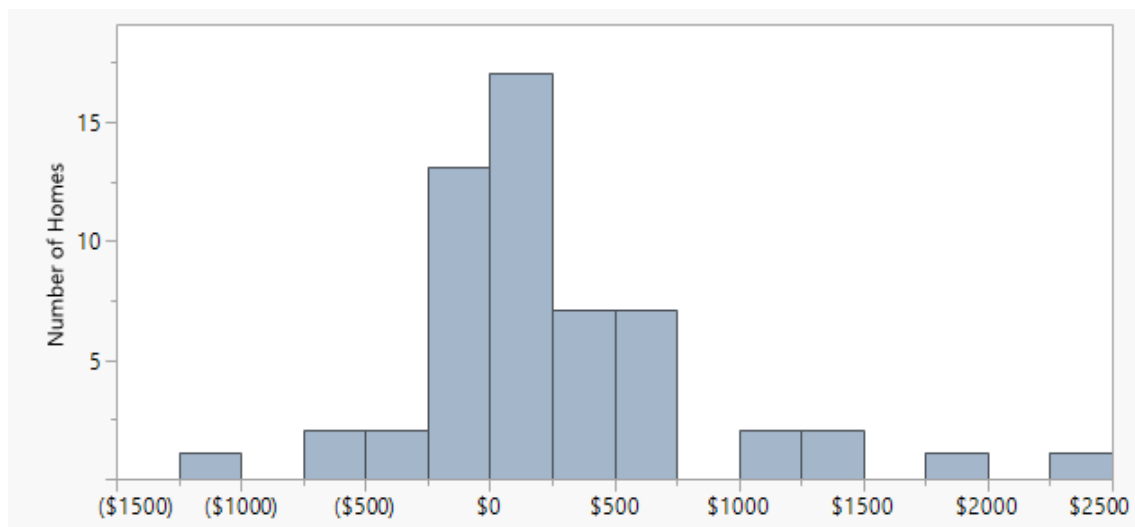


Figure 10 Distribution of estimated annual utility savings (electricity, natural gas, water, and garbage cart) per household, 2016

Results from 2017 CWC Tune-ups

CWC volunteers changed their audit procedure and began a social marketing campaign in October 2016, renaming their “audits” to be “tune-ups” and implementing other improvements to their training and tune-up process. To be able to analyze post tune-up utility consumption before the end of the grant, tune-ups that occurred during the months Oct 2016 to July 2017 were selected for analysis. Fifty-seven tune-ups were done during this period, forming the CWC Tune-up analysis group. Monthly household electricity, natural gas, and water records were obtained from GRU for the period August 2015

through January 2018. For this analysis, the pre and post utility analysis periods were defined as:

- Pre-audit analysis period, August 2015 – January 2016
- Post-audit analysis period, August 2017 – January 2018

When annual analyses are used, the analysis 12 months can begin at any time of the year, since every month will occur once. For example, April 2014-March 2015 can be compared to August 2015-July 2016. However, for a 6-month analysis, the pre and post periods must begin in the same calendar months, in different years, due to seasonal variability. In addition, a two year gap was necessary between the start of the pre- and post-analysis periods, because the months in which the tune-ups occurred must be omitted. This was a longer gap than previous annual analyses, which may reduce confidence in the results, due to changes at individual CWC Tune-up homes that are unaccounted for.

There were 57 tune-ups done during the analysis period. Community baselines were calculated for the full group of GRU single-family residential accounts, as in previous analyses, and compared to the CWC Tune-up homes. Surprisingly, energy use was found to have increased in almost all homes during the post audit 6 months (even when adjusted for the weather with the Community Baseline).

In investigating possible causes for the increase, we found that the 2017-2018 fall/winter weather had been unusually cold, compared to 2015-2016. The total heating degree-days in the post-analysis (2017-2018) period were 70% greater over the pre-analysis period. January 2018 was especially cold; 14 nights had lows in the 20s or 30s, and there were 17 days when high temperatures did not exceed 50°F. Winter weather in Gainesville is frequently mild enough that people can get by with minimal heating, except on very cold nights. Low-income households are also more likely than affluent households to avoid heating, if possible, and could be hit by larger increases in energy use when comparing mild to cold winters. This was supported by checking the energy use of other CWC client homes (audited 2010-2016) over the same 6-month periods. Most of these homes also experienced increased energy use in 2017-2018. Because the CWC clientele are low-income residents and often inhabit smaller, older homes than average, we investigated whether their increased usage was different from other similar homes. We recalculated a regression equation with a more narrowly defined sub-set of the community and compared the performance of Tune-up homes to similar homes in the community, unassociated with CWC, to see if a difference could be observed. Using data from the property appraiser's database, the range of ages and heated areas in the Tune-up homes was used to filter the full set of about 33,000 GRU homes. The following criteria were used, to match the tune-up homes and eliminate unoccupied homes:

- Heated area between 500 – 2200 square feet
- Effective construction year between 1955 and 2006
- Minimum of 1000 ekWh energy use

A regression equation was calculated for 20,567 homes that met these criteria and was used to predict energy consumption during the post-analysis period for Tune-up homes and two comparison groups.

To select comparison groups, the homes used for the regression equation were further filtered, to match the range of energy use in the Tune-up group and remove a few outliers with extremely high water usage during the 6-month pre-analysis period. The largest comparison group (GRU Similar) includes homes throughout GRU's service area that had:

- Energy use less than 14,000 ekWh
- Energy intensity greater than 1.1 (ekWh/heated sqft)
- Water usage less than 240,000 gallons

Because there still may be differences in building construction between the GRU Similar homes and the Tune-up homes, a smaller comparison group was selected that was also filtered for location and home value. The zip code 32641 was chosen as a good match, as it contains the Duval neighborhood where many of the CWC Tune-up homes are located and some areas to the south and east of Duval. The Alachua County Property Appraiser (ACPA) 2010 Just Values were used to represent homes' relative values, and the range of values for Tune-up homes was found to be between \$33,000- \$142,000. Although the value of a home does not directly influence its energy efficiency, it may be related to the quality of construction and weather-tightness of the building. Screening the 32641 zip code area for this range and removing those with incomplete GRU utility data for the period resulted in a group of 2,392 matching homes, here called the Duval group.

Physical characteristics of the three sets of homes (Table 13) show that the ages of all three groups were very close, and while the size of Duval and Tune-up homes was almost identical, the Tune-up group had a higher mean value. Compared with GRU Similar homes, the Tune-up group was 14% smaller and had 41% lower appraised values. On all other measures, Tune-up homes fell between the Duval and GRU Similar groups. This includes other information available from the ACPA on the heating and air conditioning systems in the homes, since they are major sources of energy usage. The tightness of the building envelope, amount of insulation and efficiency of the heating system are likely to be the greatest factors behind increased energy use during the post-analysis period, but no information was available on these factors.

Some differences were found between the types of heating and cooling systems in groups. Most homes in all the groups have central air-conditioning and some type of forced-air (ducted), central heating system. Forced-air heating could be electric resistance heat (electric furnace), an electric heat pump, or a gas furnace. Homes can have either room or central air conditioning or none, but for the comparison groups we do not know whether electric heat is from (generally more efficient) heat pumps or very inefficient resistance strip heaters. In very cold weather, heat pumps switch to emergency resistance strip heating and then offer no efficiency benefits. Therefore, electric heat systems will be less efficient than gas heat during very cold periods. Appraisal records show that the Duval group had the highest percent of electric heat at 72%; Tune-up homes had 62% electric, while the GRU group had the smallest percent electric with 54%. The percentage of homes without air-conditioning was 12% for Duval, 9% for the Tune-up group and only 4% of the GRU Similar group.

Table 13. Housing Characteristics of tune-up homes and comparison groups

Group	N homes	Age years	Size sqft	Median Just Value (2010)	Electric Heat	Gas Heat	Central AC	No AC
CWC Tune-ups	53	34.0	1,251	\$86,100	62%	38%	91%	9%
Duval Group	2,392	36.0	1,235	\$74,250	72%	23%	85%	12%
GRU Similar	20,093	33.2	1,461	\$121,400	54%	45%	95%	4%
Difference Duval – CWC	-	2	-1%	-14%	10%	-15%	-5%	3%
Difference GRU Similar – CWC	-	-1	14%	41%	-9%	7%	4%	-5%

Energy Savings

Continuing the comparison of the three groups, energy use for the pre-tune-up period was relatively close in all the groups, with the Duval homes using 2% less and the CWC Similar group using only 4% more than the tune-up group (Table 14). Although the Tune-up (and Duval) homes are smaller and use less energy, they used more energy per square foot, or energy intensity, in 2015-2016, with the Tune-up group having the highest energy intensity. In the post tune-up period, the cold winter weather increased everyone's energy use but the amount of increase in the Tune-up homes was less than the other two groups, as shown by the difference in energy intensity of 0.5 for the Tune-up group vs. 0.56 and 0.71 for the Duval and GRU Similar homes, respectively.

Table 14. Energy Use: August 2015 – January 2016 compared to August 2017 - January 2018

Group	Pre Energy Use (ekWh)	Post Energy Use (ekWh)	Pre Energy Intensity	Post Energy Intensity	Difference Energy Intensity	Post Energy Cost per Sqft
CWC Tune-ups	6,682	7,289	5.8	6.3	0.50	0.68
Duval Comparison Group	6,532	7,189	5.45	6.02	0.56	0.75
GRU Similar	6,933	7,960	4.91	5.61	0.71	0.62
% Difference Duval – CWC	-2%	-1%	-6%	-4%	12%	10%
% Difference GRU Similar – CWC	4%	9%	-15%	-11%	42%	-9%

However, despite the smaller increase in energy use in the post- Tune-up period, when the size of homes are included the energy cost per heated square foot shows the CWC homes still paid about 9% more than the GRU Similar group. The Duval group paid the highest cost (10% more than Tune-up homes).

Because all homes increased their energy usage in the later period, savings are effectively manifested as *lesser increases* in energy consumption and costs (Table 15). Overall savings for the group are calculated as percent differences in the sums of actual and baseline predicted energy consumption.

Table 15. Mean Energy Savings: August 2015 – January 2016 compared to August 2017 - January 2018

Group	HH Energy Savings (ekWh)	Actual Group Energy Use (ekWh)	Predicted Group Energy Use (ekWh)	Group Energy Savings	HH Energy Cost	HH Energy Cost Savings
CWC Tune-ups	-1,605	386,308	285,179	-29.8%	\$851	-\$152
Duval Comparison Group	-1,609	17,196,727	11,872,237	-32.4%	\$924	-\$190
GRU Similar	-2,000	159,938,159	123,050,606	-32.7%	\$900	-\$197
Difference Duval – CWC	4	-	-	2.6%	-\$73	\$37
Difference GRU Similar – CWC	396	-	-	2.8%	-\$49	\$44

From this analysis, the CWC Tune-up group of homes had *lesser increases* in energy use, or “savings” of about 2.7% over similar homes in the other groups during the post analysis period. Their mean energy cost increase was \$152 vs. \$190 and \$197 respectively for the Duval and GRU Similar groups. This translates to an energy cost savings of around \$40 over the 6-month period.

Water Savings

The water analysis groups are somewhat smaller than the energy groups since not all homes have water service from GRU. Tune-up homes used between about 3500 gallons and almost 70,000 gallons over the 6-month pre tune-up period. Because water use is highly variable, the comparison groups for water were filtered to exclude homes that had initial water use outside of this range.

In the pre-tune up period, CWC homes used more water on average than those in the comparable groups, but had very similar usage during the post analysis period (Table 16). Rather surprisingly, the results of a simple pre vs. post comparison show that all three groups had substantial mean water savings. While the savings were largest in the CWC Tune-up homes, the incremental savings between the groups were relatively small, just under 500 gallons more savings than Duval, and about 1,500 gallons greater savings than the GRU Similar group.

Table 16. Mean Water Usage and Savings: August 2015 – January 2016 compared to August 2017 - January 2018

Group	N Homes	Pre Water Usage (gallons)	Post Water Usage (gallons)	Water Savings (gallons)	Percent Water Savings
CWC Tune-ups	48	25,000	20,700	4348	17.40%
Duval Comparison Group	1738	23,000	19,200	3868	16.79%
GRU Similar	18058	23,500	20,700	2789	11.87%
Difference Duval – CWC	-	-2,000	-1,500	-480	-0.6%
Difference GRU Similar – CWC	-	-1,500	0	-1,559	-5.5%

Calculated water bills for the three groups were very alike during the post-analysis period (Table 17). On average, water cost savings for the Tune up homes were \$15.50, saving about \$3 more than the mean Duval home and a little over \$7 more savings than the mean GRU Similar water bill.

When combined with energy bills, the Tune-up homes' total utility costs for the 6-month post period averaged \$20 less than the mean Duval costs and almost \$100 less than the mean GRU Similar home. Because the groups began with different utility costs, the difference in bills is not the same as the cost savings experienced by the groups. As well, all the groups experienced higher utility bills in the 2017-2018 period than they had in 2015-2016 analysis period. Overall, the Tune-up homes saved \$38 (a lesser cost increase) when compared with the Duval homes and saved \$47 when compared with the GRU Similar group.

Table 17. Water & Utility Cost Savings: August 2015 – January 2016 compared to August 2017 - January 2018

Group	Post Water Cost	Water Cost Savings	Percent Water Cost Saving	Post Utility Costs	Utility Cost Savings
CWC Tune-ups	\$125.01	\$15.50	12.40%	\$1,000	-\$124
Duval Comparison Group	\$119.87	\$12.35	10.30%	\$1,020	-\$162
GRU Similar	\$125.47	\$8.13	6.48%	\$1,097	-\$171
Difference Duval – CWC	-\$5.14	-\$3.15	-2.1%	\$20	-\$38
Difference GRU Similar – CWC	\$0.46	-\$7.37	-5.9%	\$97	-\$47

One final comment: It was curious that all three groups used significantly less water in the post analysis period. Differences in rainfall, reducing outdoor irrigation in the 2017-2018 period, is the most likely cause. Rainfall during the post 6 months totalled 32.37 inches vs. 26.02 inches during the pre-tune up comparison period, 24% higher. In past analyses, the analysis periods for CWC audits were staggered by 3-month intervals before usage was combined to determine any water savings. This tended to even out differences in water usage due to weather. That wasn't the case for this analysis, as all tune-ups used the same pre and post analysis months. The use of comparison groups was intended to compensate here. We also know that many homes were without power for at least a few days – and some a week or two after Hurricane Irma damaged the local power grid in August 2017. It is likely that some additional water (and energy) savings accrued to the affected homes over this period.

Persistence of savings; 2010-2015 audits in 2016

Concerns are often expressed that efficiency savings may be temporary, that the benefits may be diminished over time. Therefore, the performance of homes that had had CWC audits in 2010-2012 was considered again in 2016, to determine whether energy savings had continued up to 7 years after the original analysis period. The pre-analysis year and consumption data for each home was not changed, but now energy data from the calendar year 2016 was substituted as the post-audit comparison year. A group of 116 homes had complete GRU utility records for the 2016 calendar year. Both energy and water savings had persisted over time in this group that was initially audited in 2010, 2011 or 2012. Results show that both energy and water savings have persisted over time for all of the sub-groups that had participated in other GRU energy retrofit programs, (LEEP and appliance rebates) (Table 18). Median results are shown, as they minimized the effect of small numbers homes at the upper and lower extremes in such small comparison groups.

The majority of the audited homes had maintained or increased their savings. Some homes that had previously been in the “Audit only” group had subsequently participated in LEEP, moving them to the “Retrofit after audits” group.

Table 18. Persistence of median energy savings in 2016 from audits in 2010-2012

Program Description	N homes	Expected Post Energy Use ekWh	Actual Post Energy Use ekWh	Energy Savings ekWh	Percent Energy Savings¹
Audit only	36	15808	11390	3135	20%
Retrofits before audits	32	13600	13315	2380	18%
Retrofits after audits	48	15436	14033	2858	19%
All participants	116	15045	12449	2826	19%

¹ Percent utility savings are calculated as a percentage of the estimated post-analysis costs

There are several possible reasons why these homes have shown large savings, first in part due to their relatively high initial consumption of both water and energy. Their pre-audit energy use was about 16,400 ekWh per year or 1,367 ekWh per month. Compared with CWC 2016 audited homes, this annual energy use was about 15% higher than their 14,200 ekWh. Some homes in the “Audit only” group likely had efficiency improvements from groups other than GRU, and we know from the sample of follow-up phone interviews done by the CWC that some occupants continued to make significant changes to their homes that would be expected to improve their efficiency.

The distribution of energy savings from the Audit only group show that these homes had similar proportions with small energy increases (negative savings), but they had relatively few participants with larger energy increases. Again, we know anecdotally that some retrofitted homes had had non-working heating or air conditioning systems that were replaced by GRU. This would have increased their energy consumption in comparison with the immediate pre-audit period but improved living conditions for these participants.

A distribution of their energy savings again illustrates that some homes still had increases, but significantly more had energy savings (Figure 11).

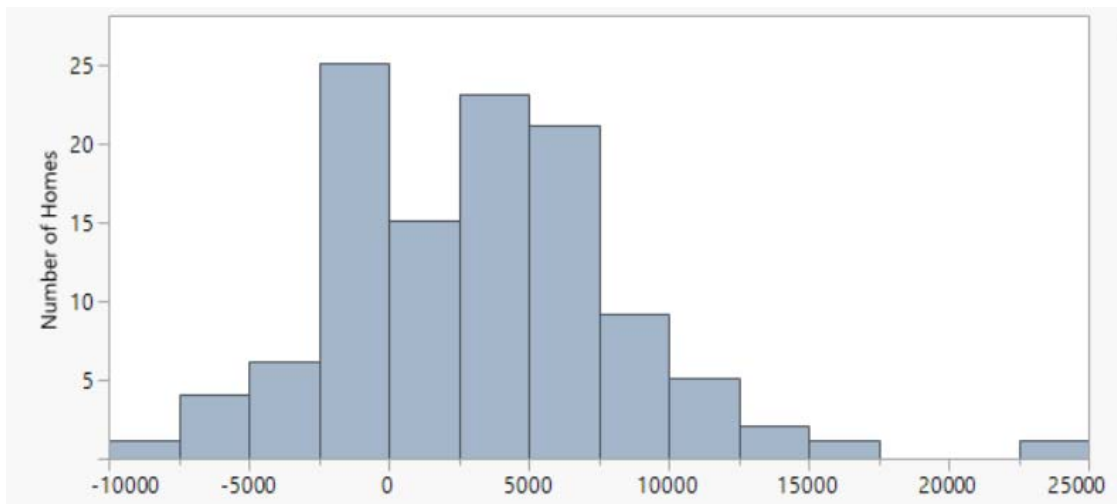


Figure 11 Distribution of energy savings in 2016 from homes audited in 2010-2012 by the CWC

Water usage for the CWC homes also showed persistent or increased savings. Their pre-audit mean was 66,000 gallons and only 48,000 gallons in 2016, a difference of 18,000 gallons. Although a water baseline was not deemed necessary, the CWC homes was compared to the full set of GRU single-family residential customers that were used to create the energy baselines (Table 19). Average household water consumption for the calendar years 2010, 2011 and 2012 in the broader community was 72,000 gallons and 66,000 in 2016. The overall communities' water consumption was therefore reduced about 6,000 gallons, or 8.5% less in 2016. The CWC audited homes saved on average about 12,000 gallons more, or 18% of their pre-audit water usage. Median water savings of 13,900 was 3,900 gallons more than the community median savings of 10,000 gallons, a savings of 7% of the median pre-audit usage of 56,000 gallons.

Table 19. Comparison of mean water usage and savings 2010-2012 to 2016

Group	N Homes	Pre Water Usage 2010-2012 (gallons)	Post Water Usage 2016 (gallons)	Water Savings (gallons)	Percent Water Savings
CWC participants	116	66,000	48,000	18,000	27.3%
Comparison Group All GRU Baseline	32,700	72,000	66,000	6,000	8.5%
Difference Comp. Group – CWC	-	6,000	18,000	12,000	18.2%

Similar to the energy results, the large savings experienced by these homes may be in part due to the fact that they began with relatively high initial water consumption. Even though they had lower than average pre-audit usage compared to the full GRU group of

single-family detached homes, they had higher usage than other, more recent, CWC participants did. Their pre-audit water use averaged 59,000 gallons per year, equivalent to 5,500 gallons per month. This was 62% more than the average pre-usage of the CWC 2016 audited homes (3,400 gallons per month).

The fact that the 2010-2012 homes started from higher values, so in a sense had more to save, combined with the large number of homes receiving additional efficiency improvements have shown that large savings of both energy and water are possible and possible to sustain. However, it may not be less likely that subsequent audits and tune-ups will be able to increase their level of savings. At the least, significant reductions in benefits would not be expected based on these results.

They were able to save an average of about \$491 per year on their utilities, out of a total cost of about \$1,975. This was about 25% of their 2016 utility expenses. The median savings of \$391 was equivalent to almost 20% of the average 2016 utility bill. It is possible that these occupants, who were motivated previously to participate in the efficiency programs, were also motivated after their audits to continue to look for ways to improve their efficiency. Perhaps over time, they were able to make further repairs recommended by the audits, as suggested by the results of the follow-up phone calls carried out as part of the DEED grant.

Problems encountered and how addressed:

2016-2017 Tune-ups

A first calculation of energy savings for the Tune-up homes using the standard baseline method showed that almost all homes had increased usage during the Post-Tune-up period (August 2017 – January 2018) vs. the Pre-Tune-up period (August 2015 – January 2016). Initially, it was not clear if the increased usage was valid. When analysis of previously CWC audited homes also found them to have similar and slightly larger increases in energy consumption, the response of the homes to cold weather was investigated. We know that most homes served by the CWC tend to be smaller and older, and are likely to be less energy efficient than the overall community average. Possible factors for the usage increases include:

- Building envelope. Homes with relatively leaky building envelopes require more energy to heat than the norm, and unusually cold weather that occurred through the 2017-2018 winter could increase heating loads in inefficient homes beyond what would be predicted by the community baseline.
- Shorter analysis period. The impact of a cold winter is greater in a 6-month analysis than in an annual analysis, particularly as Gainesville's cold weather is often short and can warm up considerably during February and March. A full 12-month analysis may have somewhat different results.

It is not necessarily accurate to double the calculated 6-month energy consumption values to obtain annual usage. If annual costs were calculated from the mean 6-month (skewed by high heating months), a small increase above the true value is amplified, especially if a higher price tier is involved. February and March are unlikely to need as much heating as December and January in Gainesville, so to avoid doubling the effect of the colder months the 6-month analysis should not be extrapolated to annual values.

Results, achievements and important findings:

Baselines

The use of smaller sub-groups as the basis for calculating baselines was investigated for the analysis of 2016-2017 Tune-up homes. Several different sub-groups were tried, and while the ability of the baseline to more closely match predicted energy use to the actual usage did improve with more narrowly defined “communities,” similar differences were found between the analysis and comparison groups.

Comparison groups

The use of comparison groups selected by similar building characteristics and ranges of initial energy and water consumption appeared to be an effective method of differentiating smaller energy changes in participating homes when weather extremes increase usage in most similar homes.

Variability

Homes with higher initial energy and water consumption have the greatest potential for savings and usually do have savings, but not necessarily greater magnitude than other homes in mid-range usage.

Future plans

2016-2017 Tune-ups

An annual follow-up of these homes could confirm whether increased need for winter heating was the primary cause of the observed increases and provide a more reliable estimate of annual impacts of the tune-ups.

Analysis method

Improvements to analysis methods include investigating possible correlation of several characteristics that could be used to explain and predict which homes will experience energy or water savings, and their approximate magnitude. Factors could be developed based on several household characteristics:

- Building envelop efficiency - Perhaps a simple point system could reflect the amount of attic insulation, age of the HVAC system, single or double pane windows and an estimate of the building's weather-tightness based on observation of gaps around doors and windows. Although these data are not available for the full community, they could be estimated from the performance of previous CWC audits and tune-ups.
- Heating system - Adjust for the type and efficiency of space heating sources in homes. This could be as simple as three categories: gas furnace, electric heat pump, or resistance electric heating.
- Number of occupants - Adjust for the number of persons in the home. Even though it is not possible to know this for the entire community, a factor could be used to adjust expected usage up or down for the number of persons in tune-up homes.
- Separate seasonal or electric and natural gas baselines – This approach may be able to better identify causes of inefficiency and allow more targeted interventions.
- Use follow-up information from residents to understand other reasons for variability in households, and assess impact of individual measures.

- Improve accuracy of utility bill estimates – individual monthly consumption could be used to calculate monthly bills for each home, rather than calculating average monthly bills based on annual consumption.

Lessons learned and applicability for other utilities/communities; recommendations for measuring and verifying impact of energy conservation campaigns

Data availability

Community utility data are necessary to calculate baselines for comparison, so good relationships with local utilities are important. Publicly owned utilities are more likely to make data available. Names and other personal data were removed from utility data to lessen privacy concerns, although addresses or parcel numbers are likely needed to match building data for ages and sizes of homes. There is no need to present utility or building data except in aggregated forms.

Community baseline method

More closely matched community samples will generally provide smaller error terms, but narrowing the community to only very similar homes risks losing the larger picture of changes across segments of the community. The obscuring effect of large swings in energy consumption can be overcome by using both more broad community baselines and very similar comparison groups.

Tune-up effectiveness

Cooperation with other organizations is important to expand the range of weatherization services, such as installing attic insulation, caulking and sealing gaps and sealing ducts. Additional support to provide these services as well as more substantial energy retrofits could significantly increase energy savings.

Groups like the CWC could consider some targeted tune-ups in households with average and higher than average usage based on their past energy intensity. Flyers or other messages from their utility could be used as well as personal discussions at public events. A laptop or tablet computer could have a spreadsheet with energy intensity pre calculated and referenced by home addresses. Our results have shown that you do not have to have unusually high consumption to have significant benefits, but those at the very low end of the baseline curve rarely have savings. By avoiding doing tune-ups for those who already have very efficient households, the overall program savings might be increased. Those interested in tune-ups could be told whether they are good candidates for significant savings.

Follow up interviews could also be used to identify whether participants have made changes recommended in their tune-ups, and over time may provide a basis for estimating savings from particular efficiency measures.

CARBON OFFSETS VALUATION AND MARKETING

Project Goals and problem to be addressed:

The final component of DEED grant activities was the work by local non-profit We Are Neutral (WAN) to develop measures of carbon offsets (reductions in emissions of carbon dioxide or greenhouse gases made in order to compensate for or to offset an emission

made elsewhere) resulting from CWC tune-ups, and to explore the potential for local sale of these offsets. Most of the time, carbon offsets are generated on a large scale, thousands of miles away from the person or business offsetting their carbon footprint (the “offsetter”). Carbon offsets that are generated locally, improving the community around the offsetter, give the offsetter a chance to actually participate in the positive actions used to make up for their negative actions, therefore making them carbon neutral. This creates more impactful and longer lasting change than just paying for the offsets. Unfortunately, turning a positive action, like the work of the CWC, into a marketable carbon offset is incredibly complicated. If successful, we will be able to turn the reduction of carbon emissions into marketable carbon offsets that will become a revenue stream for both CWC and WAN, while inspiring the community to take responsibility for their carbon footprint with their own two hands.

Activities and Methods:

We Are Neutral compiled a list of all addresses that have received energy retrofits by either the CWC or We Are Neutral. We will then pull utility data for 5 years before the date of the audit, and 5 years after. In collaboration with PREC researchers, we will use these data to calculate how many gallons of water and kilowatt-hours were spared due to our work. We will then translate this into tons of CO₂ spared. After this is calculated, we will either find or create a protocol, and hire a third party verifier, which will theoretically allow these tons to be registered on a reputable site and therefore able to be sold to individuals and businesses that want to offset their carbon footprint on a local level.

Future plans

We will continue to work towards verifying the work of the CWC and explore the potential to turn their work into marketable carbon offsets that will become an additional revenue stream for both organizations. If this is successful, we hope to aid other communities that have nonprofits or organizations similar to the CWC. We think that turning positive actions into marketable carbon offsets is a win-win and shouldn't be as complicated as it is. We hope to pioneer this strategy and pave the way for more locally generated carbon offsets.

FINAL COMMENTS

Status: *status when grant concluded*

With the conclusion of the grant, the CWC has successfully re-designed our outreach and educational strategies and is continuing to develop active research partnerships with local non—profits and the local university to continue monitoring and improving our service delivery and marketing.

Applicability: *(how others might use the results of the project. Explain if there are public power systems (those of a particular generation resource, with high distribution losses, etc.) that might find the result of this project especially useful* **VERY IMPORTANT)**

The project produced guidelines, lessons learned and best practices suggestions for volunteer-based home energy/water use surveys elsewhere, especially where partnerships exist with locally-owned municipal utilities. The results suggest ways that research using Community-Based Social Marketing approaches, combined with rigorous monitoring of impacts on savings of money, energy, and water can improve the performance of programs to address the needs of low-income homes facing high utility

bills. The potential sale of carbon offsets from such weatherization programs suggests an innovative means to generating financial returns to make such conservation initiatives more sustainable.

More concretely, the CWC has served as a model for a new program being launched in 2018 by Sarasota County and the Sarasota County University of Florida/Institute for Food and Agricultural Sciences office of Extension and Sustainability, in Sarasota, Florida. Since the fall of 2016, the CWC has been sharing information about the CWC, and advising Sarasota staff about our experience in building and managing the tune-up program. The CWC provided access to materials including training outlines, PowerPoints, volunteer background checks and other paperwork, client applications, and discussed questions related to renter vs. homeowner tune-ups. Sarasota staff participated as observers in our volunteer training in October 2017, and in 2018 hired a temporary part-time staff person as “Community Conservation Program Specialist for Sarasota County,” to develop the volunteer training program in Sarasota, hopefully with participation by CWC/UF experts. The purpose of the training, a 24-hour program conducted during four days over five weeks in July-August 2018, is “to provide volunteers the skills and knowledge to perform ‘audits’ and minor installs (similar to CWC model) and also provide an overview of green energy and building topics and a train-the-trainer model to help the program propagate” (personal communication, Lee-Hayes Byron, Sustainability Manager). The CWC looks forward to continuing to collaborate with this Sarasota initiative, and other groups interested in learning from our experience.

Future Plans: *(continued or tangential work planned; if not, why not)*

The successful research partnerships established under the DEED grant are continuing for the future. The CWC is planning additional CBSM research in a focus neighborhood to better understand the interests and needs of specific client groups (elderly; veterans; single parents). Annual monitoring of quantitative impacts of CWC home energy/water tune-ups will continue to be carried out by UF, and used to measure carbon offsets for potential sale to provide income for the CWC, in partnership with WAN.

Equipment: None purchased

BUDGET**Final report budget****DEED grant**

budgeted spent

Other sources**YEAR 1 (May 2016-April 2017)****Personnel**

CWC Coordinator

\$8,351 \$8,351

CWC \$8,351

CWC Executive Director

in-kind \$20,168

Social Marketing coordinator

\$22,661 \$22,661

Measurement and Verification coordinator

\$15,000 \$15,000

Measurement and Verification supervisor

in-kind \$17,785

Sub-total personnel Year 1

\$46,012 \$46,012

Marketing

\$5,000 \$5,000

Customer surveys

\$3,000 \$3,000

SUB-TOTAL YEAR 1**\$54,012 \$54,012****\$46,304****YEAR 2 (May 2017-April 2018)**

CWC Coordinator

\$8,351 \$8,355

CWC \$4,177

CWC Executive Director

in-kind \$20,168

Social Marketing coordinator &
assistant

\$11,330 \$11,335

Measurement and Verification coordinator

\$10,000 \$10,000

Measurement and Verification supervisor

in-kind \$17,785

Carbon offset advisor

\$1,500 \$1,500

WAN \$1,500**SUB-TOTAL YEAR 2**

\$31,181 \$31,190

\$43,630

TOTAL BUDGET FOR YEARS 1 & 2

\$85,193 \$85,202

\$89,934

**TOTAL BUDGET FROM DEED GRANT + OTHER
SOURCES****\$175,136**

APPENDICES

Appendix A Strategic Planning Report 2017

Appendix B Example Volunteer Focus Group Guide

Appendix C Example Client, Potential Client Focus Group Guide

Appendix D Focus Group Summary Report

Appendix E CBSM Changes Report for Volunteers

Appendix F Best Practices Manual for Applied Social Research to Improve a Non-Profit Service Organization



Strategic Planning Report

On Strategic Planning Meetings

June 14 & 29, 2017

Final Draft August 17, 2017

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Strategic Planning Overview

- On June 14 and 29, 2017, Community Weatherization Coalition (CWC) board, staff, and volunteers participated in a two-evening strategic planning workshop.
- The two meetings took place on weeknights from 5:30-8:30pm at the United Church of Gainesville.
- There were 12 participants at the first and 11 participants at the second of the meetings, though 7 participants attended only one of the meetings.
- At both meetings participants processed through pre-planning survey data and discussed priorities moving forward.

Meeting Summary

Topics covered and activities that took place at each meeting have been summarized below:

Day 1

- History of CWC: How we go to now,
- Presentation of select pre-planning survey data,
- Time to process qualitative responses,
- Share in small group,
- Report to larger group,
- Group discussion.

Day 2

- Brief review of CWC history and Day 1,
- Presentation of select pre-planning survey data,
- Mission discussion,
- Vision survey data review and brainstorm,
- Values survey data review and brainstorm,
- Time to process and prioritize strategic initiatives,
- Share in small group,
- Report to larger group,
- Group discussion.

History of CWC

- Started in 2007 with conversation among area churches that realized people couldn't pay their energy bills.
- Decided to train volunteers to do home energy audits in line with the volunteer-based model used by Rebuilding Together North Central Florida.
- GRU connected them with other groups; provided them with a facilitator and meeting support for the first year; discussed how to connect with housing rehabilitation agencies, how to train auditors, how to put together kits, how to recruit clients, etc.
- Created a cohesive group and carried out two trainings a year (2008-2011).
- Organizational pause in 2012-2013 when CWC lost a core staff person and there was a downturn in resources.
- Since 2015, CWC has been revamped, received a few grants, hired a full-time staff person, created a board, and conducted bi-annual training for new volunteers.
- A 2015 strategic planning process helped guide the organization towards getting a measurement/verification and Community-Based Social Marketing grant, the DEED Grant from the American Public Power Association through GRU.
- Funding has been secured to cover a percentage of the organization's operating costs for the next three years.

Mission

The CWC Mission Statement was discussed briefly. Based on the pre-meeting questionnaire, 11 of the 15 respondents to this question felt the current mission statement adequately captures what CWC does. While most people agreed a formal change to the mission statement would need a longer period of time to solidify, some ideas were shared to improve this statement of central identity of the organization. The current mission statement is:

To improve home weatherization and energy efficiency for low-income households through education, volunteer work projects, and community-building.

Suggestions for improving the mission statement were collected on the pre-meeting questionnaire. The suggestions from the questionnaire as well as those discussed during the meeting are listed on the following page.

Here are ideas that were suggested on the pre-meeting questionnaire and those brainstormed and discussed at the planning meeting:

- Saving water, energy, and money while creating community.
- Saving water and energy for all.
- Volunteers empowering people while saving water, energy, and money while creating community.
- Take out "weatherization" and say something like, "To improve energy and water efficiency for low-income households through education, volunteer work projects, and community-building."
- We need to make it shorter
- Strengthen local community through energy conservation, education, empowering its citizens to be more resource efficient.
- The CWC helps save natural resources while saving low-income families money on their utility bills.
- The CWC is a network of neighborly volunteers helping households resolve utility cost burdens and occupancy discomforts through conservation behaviors, energy and water efficiency measures, and home health and safety education and empowerment.
- Improving energy efficiency and water conservation in our community, by empowering low-income community members to save on their utility bills through educational home energy tune-ups.
- Promoting energy efficiency, water conservation, and reducing the utility bills of Alachua County's most energy-burdened community members (or most vulnerable citizens?) [... with educational home energy tune-ups and community-building?]

Vision

The CWC has not yet developed a vision statement, which can help guide the organization towards making decisions aligned with the ultimate goals of the organization. The following ideas were captured to assist in formulating a vision statement at a later workshop:

- Strengthened community resiliency by improving energy efficiencies in homes for energy efficiency.
- An empowered, energy and water efficient community where all families are comfortable and able to manage their utility bills.
- A community where all families conserve resources and can manage their utility bills.
- A community where the energy burden is shared equitably.
- An efficient community where everyone has been touched.
- Enough volunteers so no one person needs to do more than one tune-up per month to meet goals. We have the ability to track, document, and publicize our energy and water savings following each tune-up. Enough resources and organization partners to follow up and correct the problems we identify during the tune-up.
- Equity, saving money, energy conservation, empowerment, building community, learning, quality of life.
- Community volunteers and residents learning together to save money, conserve water and energy, and make homes more comfortable.
- We help everyone to make a noticeable reduction in their utility bills saving water and energy for all and inspiring them to improve their energy saving habits.
- We increase self-efficacy among homeowner (residents) regarding their ability to reduce energy bills and take care of their home.
- We work with local residents and volunteers from the communities we serve to sustain improvements of tuned-up homes and clients tell others about our services.
- Local volunteers helping the community by empowering members to reduce the financial burden of their energy bills.
- Having enough volunteers to meet tune-up objectives with one tune-up per energy coach per month; the ability to track, document, and publicize energy/utility savings following each tune-up; and enough resources and organizational partners to be able to provide needed structural improvements as identified during tune-ups.

Values

Organizational values were assessed with the pre-planning questionnaire and shared with meeting participants to help them focus on the core principles of the organization before determining strategy and next steps. Values shared on the questionnaire were displayed as word clouds at the meeting and participants highlighted these as the organization's core, guiding values:

- Commitment
- Respect
- Connection
- Understanding
- Learning as an Organization
- Collaboration/Partnerships
- Relationships
- Care
- Helping/Service
- Communication

Strategic Initiatives Overview

Several opportunities to expand and sustain the program were identified during the meetings. On Day 1, participants reviewed ideas from the pre-planning questionnaire and discussed new ideas. Those ideas were summarized in a report of possible strategic initiatives, which participants reviewed and prioritized on Day 2 of the planning process. The initiatives have been organized by task below:

- A. Commissioners:** Meet with Commissioners in local government to communicate benefit of CWC and continue positive relationships and funding.
- B. Marketing Plan:** Develop a marketing plan including some short promotional videos to meet program needs and accomplish goals.
- C. Engaging business sponsors.**
- D. Training:** Continue to improve and modify the training as the program evolves, adapts, and changes.
- E. Digitization:** Digitize application, tune-up form, and follow-up.
- F. Work to engage the faith-based community.**

A. Commissioners

Meetings with City Commissioners were already planned before the meetings. These meetings can maintain or increase financial support as well as help network with potential business and non-profit partners. Suggestions for those meetings included:

- Meet before and during budget talks in July 2017- ask for budget for upgrades.
- Check in, give update, share successes; one-page handout: work, impact, goals.
- Ask to share CWC with partners, organizations, and other possible volunteers.
- Ask for feedback on marketing mix and CWC's story as we develop.
- Invite to join a Tune-Up with clients, of an old city building, or their own home.
- Educate Commissioners: energy burden, local economic impact, etc.

B. Marketing Plan

Overall, developing a marketing plan including testimonial videos for different audiences (clients, volunteers, potential donors) was a prominent need.

- **Marketing committee**- develop a small 3-4 person group.
- **Create a compelling story**- what CWC does, who CWC helps, how CWC helps, CWC's impact in the community, for the community as a whole. Tell powerful stories-- tell the story of what we do and what CWC means to clients, how it has helped them. Market the CWC so everyone feels like we do about it.
- **Video Marketing:**
 - 30 seconds- 3 minutes
 - Determine video goal that matches program needs:
 - **Recruiting volunteers**
 - **Retaining volunteers**
 - **Soliciting funds from businesses/Engaging Business Sponsors**
 - **Soliciting volunteers, funds, and/or referrals from faith-based organizations like churches.**
 - **Soliciting funds from individual donors**
 - Calculate data that appeals to the different audiences to include in different videos (client recruitment- average \$ saved a home annually in a relevant amount like cheese burgers or coffee; business sponsorships- community \$ saved annually or something else, etc.)
 - Think about outlets to publish/view videos: website, WUFT, Community Access Channel (needs to be professional production value)
 - Specific audiences: Businesses, public/individual donors, churches, clients, volunteers
 - Develop relationships with professional producers: Alachua County media branch, UF Office of Sustainability (interns? Volunteers), Two Head video-DJ Head (Anna can introduce)
 - Choose strategic channels and dates to launch stories on:
 - Social Media
 - Website (under development currently): Testimonials, videos, donation levels
 - Blog
- **Marketing Ideas:**
 - Find the thesis statement, the story
 - CWC = Social, Environmental, Economic; efficient change, efficient impact; success and people reached (inspired, helped, educated, touched, etc.)
 - Ripple effect.
 - Find where fundraising has been productive in the past, what has worked.

C. Engaging Business Sponsors

- Start with good prospects for sponsoring CWC (~4 businesses)- conduct a survey/interview to determine their values, why they would support CWC (or why not), who else might be willing, how to approach/ pitch CWC to others.
- Develop sponsorship levels that have meaningful impacts, recognition for businesses.
- Discounts for clients, volunteers
- Donate goods and services
- Big box hardware stores (Possible discount for clients)
- Grocery stores (especially those with donation programs)
- Breweries
- Local restaurants and businesses
- Other 'top-tier community people'

D. Training

- Establish a training committee.
- Work with Santa Fe Community Ed- get training (or variation of training) on their schedule to get different volunteers.
- Consider shortening the in-class time commitment for volunteers and consider developing a curriculum of YouTube videos to be used.
- Consider shifting the training from three days to a weekend/full-day marathon.
- Consider developing on-demand training not our two-per-year training schedule.
- Develop a tier 2 training for people to conduct follow-up upgrades
- Increase or modify communication training, focus on the "heart" aspect.
- Consider developing a Certification Program (perhaps requiring a tune-up final exam or a certain number (10?) of tune-ups to be completed).
- Get Mark Spiller's input on areas for/methods of training improvements.

E. Digitization

- Digitize forms to be completed via tablet or smartphone app
- Develop database integration
- Develop electronic follow-up form, report generation
- Maintain the heart, analog access to apply and receive follow-up information for clients without computer and internet access

F. Work to Engage the Faith-Based Community

- Develop a faith-based sub-committee to plan and set goals for outreach to churches and other religious organizations.
- Seek out social justice or community outreach personnel deep within the church organization rather than the pastor or office staff.

Possible Initiatives from Day 1

The initiatives below were a result of brainstorming and discussion from Day 1 of the planning. This was part of the report on Day 1 that participants reviewed, discussed, and prioritized into the strategic initiatives A-G listed above. These possible initiatives have been included here as a repository for future reference. As the program evolves, these initiatives may become more necessary and appropriate for that time, or may help inspire new ideas about where CWC wants to go.

Possible Initiatives-- Client Services:

Follow-up:

- Do something extra (at no cost) for every client: Calls, retrofits.
- Raise funds for deep retrofits. Pilot-tested 2 deep retrofits with private funding last year, did not get funding this year.
- Print newsletter 1-4 times per year, reminding people to refer us to friends, referrals to other programs, info-graphics, energy saving tips.
- Follow-up phone calls by the energy coach.
- Raise money for hiring people who know how to do upgrades.

Training:

- Other schedules for training- on demand training.
- More training on client interaction, active listening, communicating benefits of their changing things when we leave.
- Train how to prioritize actions clients can take once we leave, communicate benefits/ motivate clients to do the things.
- Tier 2 training on follow-up caulking, weather stripping, nest thermostat install/operation, screen repair, window tinting, door and threshold repair, window tinting, installing light fixtures and low-flow toilets, other skills— charge participants and require they apprentice at a retrofit/upgrade.

Marketing:

- For more volunteers: Partnering with Santa Fe Community Ed.
- For more clients: Backpack flyers (especially in food4kids backpacks—ID houses that are struggling).

Energy and Water Efficiency:

- Improve training to give people skills to prioritize for each client, the things each client can do when we leave.
- Give coaches the skills to communicate with clients, talk with, convince/explain benefits on clients' own terms.
- Franchise program to other communities on how to start and run a program like CWC (and possibly fund CWC by providing the training).

Organizational Structure/Efficiency:

- Create some more formal roles and responsibilities so there can be continuity when current critical staff and volunteers are no longer as involved with the program.
- Check in periodically to discover and discuss solutions for current bottlenecks. Is it volunteers? Clients? Data? Etc.?
- Understand what the problems are and don't "fix" a problem that doesn't exist or creates more problems.

Volunteer Engagement:

- Reduce barriers to volunteers performing their first tune-up: do a walk through with them of their own home- have them tune-up that before they tune-up for other clients.
- Set goals for neighborhood participation, partnership with community organizations, like churches.

Training:

- Develop a training video to reduce the time commitment for CWC volunteers/trainers during the training.
- Online training option.
- Teach different skills to get more and more diverse volunteers that want to learn how to upgrade a home, install a toilet, repair screen.
- Train volunteers to conduct follow-up evaluations with clients.

Collaborate with Training/ Educational Institutions:

- Develop a recognized certificate and offer training to other groups.
- Offer Santa Fe Community Ed training.
- UF sustainability- Matt Williams, Community needs matching to students, teachers, etc.
 - Volunteer coders for digitization/app creation
 - Writers, researchers
 - Volunteer fundraisers
 - Marketing, communications volunteers

Organization Sustainability:

Local Government Outreach:

- Explore the economic advantages of what we do and share it with the local government boards that vote to/fund us. The simplistic argument of conservation = money lost and raised rates needs to be dispelled.
- Get into “utility is the problem” argument better with better data. Utility burden, economic and racial disparity, economic impact of CWC, etc.
- Organize people to speak at city commission meetings, share their CWC stories. Promote video on channel 12 at the same time. Repeat.
- Get especially new commissioners to go on a tune-up.
- Strategic time to leverage sympathetic Commission; when they’re new.
- City Commissioners can become a mouthpiece for CWC- they network.

Fundraising:

- Grant writing- use best practices whenever possible to help write grants that will appeal to a broader audience of funders. Standards that the DOE uses, for example. Common language or standards.
- Where has fundraising been productive in the past?- archive that to help inform where board helps focus fundraising efforts.

Business Sponsorship:

- Survey of businesses- about their values (for development purposes- so we can pitch how we align with their values).
- Get a corporate or business leader on our board.
- Engage businesses to sponsor one or two upgrades- 25 doing that would help fund the program each year.

Other:

- Focus more on individual giving/marketing
- “Store front” facility to serve the public

Marketing:

- Video production- two client stories to be ads and promotional materials.
- Tell powerful stories-- tell the story of what we do and what CWC means to clients, how it has helped them. Market the CWC so everyone feels like we do about it.
- Capture volunteers, Coaches, why they enjoy doing it.
- Follow-up with board member who can also help with video production in the fall.
- Publically celebrate the work of CWC
- Share how CWC as about families, not just energy and water. Possible new emphasis: Energy/money savings, safety, comfort, pride-improve, reduce stress.

Collaboration:

Churches:

- Appeal to churches' "community outreach committees"—their leadership changes every couple of years, but if we can identify those people in each church we can present to those people at their meeting and ask for financial sponsorship, client referrals, and volunteers.
- Attend meetings where multiple church representatives meet to discuss community-wide issues. Pitch service referrals and funding sponsorships to church representatives.

Social Services Organizations:

- Work with Catholic Charities in their network of organizations.
- CWC as community social services first responder
 - Link with social services web of support (like financial planning, health, etc.)
- Early childhood family education (ECFE)
 - Network with daycare facilities

Other Organizations:

- With Gainesville 4 All
- GNV4ALL clearing house for resources/community needs
- Gainesville 101 academy
- CWC as intermediary at household tenure changes
 - Realtors unlikely to be interested in anything that may hinder a sale
 - Are landlords a barrier?
 - Make inroads with property managers and service companies
- Continue to partner with GRU closely for helpful data:
 - Identify housing in top tier of utility cost (rate) and address those homes.
 - Continue two-way communication.
 - Continue to collect and review information about the energy burden, possible economic disparity of high ratepayers, and look into rebate information indicating the SES of people who took advantage of those programs.
- Advocacy? Advocate for more equitable distribution of utility's fixed costs than on the lowest income in least efficient homes.

Appendix B: Example Volunteer Focus Group Guide [Used June 22, 2016]

[Introduction]

Good evening and welcome to this focus group. Thank you for taking the time to join our discussion about Community Weatherization Coalition (CWC) energy and water conservation audits. My name is _____ and I am a researcher at the University of Florida. Our purpose here today is to learn about your experiences and perspectives as CWC volunteer auditors. Your thoughts and responses will be used to help increase the impact of CWC activities. We are also hearing from CWC clients to get a more complete picture of the audit experience and where there may be opportunities to improve. Your opinions are very important.

We are audio recording the session because we don't want to miss any of your comments. To keep the conversation productive, on-time, and the audio recording decipherable, please abide by the following suggestions: please speak loudly, clearly, and one person at a time. Allow each person to finish their statement completely before interjecting. We have placed name cards in front of you to assist with remembering each others' names. To facilitate transcription, please state your name each time before you speak. We ask that you please turn off your cell phone ringers and if you need to answer a call, please step out of the room and return as soon as you can.

We will not include your name on any report to the CWC board, or any final/public report. By assuring this anonymity, we are hoping you will speak honestly and openly about your experience and thoughts. We encourage everyone here today to maintain confidentiality, but we cannot guarantee that group members will do so.

My role here is to ask questions, listen, and mind the time. I also want to make sure we hear from everyone, so I may ask you something directly. I may also ask that you allow space for others to share—it is important that we hear from everyone. I may interject at times to keep us on track and to make sure we finish on time. I will not interject my thoughts or feelings into the conversation. I want you to feel free to talk with each other and to respond to what others in the group say to agree, elaborate, or offer a different even conflicting perspective. All comments are valuable and we learn just as much from negative comments as we do from positive comments.

The session will last up to two hours today. If anyone would like to withdraw, you may do so now or at any time. Finally, everyone has read, signed, and turned in their informed consent form, correct?

Great! We will start by going in a circle and having each of you tell us your name and what has been your favorite part of being an auditor for CWC?

Focus Group Questions

I want to make it clear that everyone's perspective is valuable and important whether you have been with CWC from the beginning or you were in the last training for auditors. Please feel courageous enough to share honestly, openly about challenges, things you wish were different, concerns you have, criticism, disagreement, wishes, dreams...

Please state your name, how long you've been involved with CWC as an auditor and answer this question: **[Ice breaker]**

1. What has been your favorite part of being an auditor for CWC?

Again, we all have helpful insight—seasoned auditors may have some good ideas they've thought of for a while and newer auditors may have some creative idea or perspective because they haven't done as many audits that can really help. Now we are going to switch gears to discuss the audit in general before getting into more specifics:

[Audit in general]

2. What are examples of a really good audit?
3. What about what can go wrong with an audit? Have any horror stories?
4. What is the best outcome of an audit?

Now I'd like to get to know you a little better: [Auditor motivation]

5. Why do you continue to perform energy audits? What motivates you?
6. This next question has to do with your barriers to completing audits. Could be personal or directly under purview of CWC. We hope you will be honest and share because it may help us identify opportunities to make it easier for you. Have you ever decided not to participate as an auditor for a reason other than having another commitment? What and why? Wasn't fun? Just did one? Wanted to relax? What has been a barrier or prevented you from auditing in the past? we promise not to take it personally

Now we are going to switch gears to the training: [Training]

7. Think back to the auditor training in which you participated: What were the most important things covered in the training? What have you found most useful during audits? What should definitely be taught at the training?
8. How prepared did you feel during your first audit? What was that like?
9. How do you think the training might better prepare you for an audit?

Moving on to talk about the audit again: [Client satisfaction]

10. What do you do during audits to make the clients' experience a good one?
11. What else, if anything, do you think could improve clients' experiences?
12. What about the relationship with the clients? How can auditors develop a better relationship with clients?
13. What part of the audit process or audit benefits do you think clients appreciate the most?

[Knowledge from audit]

14. What questions have you been asked from you during audits? Have clients wanted information?
15. What do clients need to understand about the changes you make in their homes during the audit?

[Energy impact]

16. Do you recommend any repeated or daily behaviors people can do to lower their energy use and/or cost? What?
17. Do you feel like you empower clients to save energy and water when you're not there? By the time their fridge coils are dusty again do they know what to do, how to conserve? Why or why not?
18. Do you know whether clients follow through and do what you recommend? Would you like to know?
19. What do you think are the barriers to clients adopting the behaviors and changes you recommend?
20. What are the barriers to CWC clients saving energy?

[Audit and form improvement]

21. What could be improved about the audit process?
22. What do you think about the audit form? How could the audit form be improved? [hand out audit form]
23. What about a name change for an audit to call it something more appealing?
[Examples from previous conversations if needed]
"Power smart," "Power-Up Duval," "Free home energy tune-up, "Home energy tune-up" "Efficiency Gainesville" "Home efficiency tune-up"
"Empower" "Energy Teams" "Energy Appraisal"

[Goals: For Moderator Preparation]

[Understand what could lead to better:

- Auditor training programs,
- Use of audit data,
- Auditor/client relationships,
- Knowledge transfer from auditor to audit client,

And Increased:

- Client enrollments
- Client satisfaction
- Engagement and retention of volunteer auditors
- Use of energy conservation practices
- Energy/utility and money savings for clients
- Energy audit impact.]

[Introduction]

Good evening and welcome to this focus group. Thank you for taking the time to join our discussion about Community Weatherization Coalition (CWC) energy and water conservation audits. My name is _____ and I am a _____ for CWC on this grant to improve the impact of their audits. Our purpose here today is to learn about your experiences and perspectives as CWC past and possibly future clients.

[Audio recording/confidentiality]

Your opinions are very important which is why we are audio recording the session today-- We don't want to miss any of your comments. We will not include your name on any report to the CWC board, or and final/public report. By assuring this anonymity, we are hoping you will speak honestly and openly about your experience and thoughts. We encourage everyone here today to maintain confidentiality, but we cannot guarantee that group members will do so.

[My Role]

My role here is to ask questions, listen, and mind the time. I also want to make sure we hear from everyone, so I may ask you something directly. I may also ask that you allow space for others to share—it is important that we hear from everyone. I may interject at times to keep us on track and to make sure we finish on time. I will not interject my thoughts or feelings into the conversation.

[Diversity is valuable]

There are no right or wrong answers today—only your experiences and opinions, which we hope you will all share freely. I want you to feel free to talk with each other and to respond to what others in the group say-- to agree, elaborate, or offer a different even conflicting perspective. All comments are valuable and we learn just as much from negative comments as we do from positive comments. We want to hear what CWC has

Appendix C: CWC Focus Group Guide, combined former clients and potential clients
Used July 11, 2016

done well and what it maybe hasn't done so well, so we hope you'll be comfortable sharing negative comments.

[Rules of thumb]

To keep the conversation productive, on-time, and the audio recording decipherable, please follow these guidelines: please speak loudly, clearly, and one person at a time. Allow each person to finish their statement completely before interjecting. To facilitate transcription, please state your name each time before you speak. We ask that you please silence your cell phones if possible, and if you need to answer a call during the group, please step out of the room and return as soon as you can. We have placed name cards in front of you to assist us and you all with remembering each others' names.

[Time/Consent]

The session will last up to two hours today. If anyone would like to withdraw, you may do so now or at any time. Finally, everyone has read, signed, and turned in their informed consent form, correct?

[Ice breaker]—These first questions are for everyone to answer in turn:

- State your first name so the transcriber can recognize you on the recording,
- How long you've lived in Gainesville and the Duval area, and
- What is your favorite part of living in your neighborhood?

- How many people have gotten an audit from CWC?

Now everyone can jump in whenever:

1. Why do you try save energy and water? Why is that important to you?
2. What gets in the way of you doing things to save energy and water?
3. How did you hear about CWC? What did you hear?

For those who have had an audit: Think back to before the audit.

4. Why did you sign up for an audit?
5. How were you feeling before the audit? Were you concerned or worried about anything?
6. What about during the audit? What was the audit like for you? What was your experience?
7. Have you ever told someone about your experience? What did you say? If no-> what would you say to describe CWC to a friend or neighbor?
8. Was the audit what you expected?

Appendix C: CWC Focus Group Guide, combined former clients and potential clients
Used July 11, 2016

9. Was there anything CWC staff or the auditors could have done to make your experience better?
10. Did you learn anything new about your home or how to save from your audit? What? What do you remember?

These questions are for everyone whether or not you've had an audit already:

11. Why do you think people don't sign up for energy audits?
12. What benefits of an audit do you think people would be most interested in enough to applying for and participate in an audit?

We have or have thought about some incentives, reasons people would get an audit and I'd like to know which people would be most interested in and why. I'll read one and then I'd like to know what you think...

- Gain knowledge of home- and maintenance?
- Learn ways to save money on energy bill?
- Get free stuff including: light bulbs, pipe insulation, showerheads, and faucet aerators? Any one excite you more than the others?
- Caulking and weather stripping?
- Installing insulation?
- Free energy efficient LED Christmas lights
- Free power strips to be able to easily turn off small appliances and electronics with lights and clocks and things when not using them
- New window ac units to replace inefficient window units/ big HVAC systems
- Chance to win a \$2500 deep retrofit? (Chance out of 10-12 homes)
- Programmable thermostat
- Rain barrel
- Compost bin
- Low-flow toilet
- Follow-up reminders from CWC to help them save money

[Marketing, terminology]

The next few questions are about possible names for the service we provide and our volunteers.

13. We thought of a few names for the energy audit and the auditors who volunteer to do them-- we would like to get your feedback. I'll read a few names and I'd like you to tell me which one you like best and why.

Appendix C: CWC Focus Group Guide, combined former clients and potential clients
Used July 11, 2016

First with the audit: Do you like any of these?

Home energy tune-up	Energy Saver
Home Survey or Home Energy Survey	Energy appraisal
Home energy visit	Energy training
Home energizer	Fitness for your home
Energize East Gainesville	Other ideas?

Now with the volunteer auditors, what do you think about:

Energy Coach
Efficiency Coach
Energy Trainer
Volunteer Energy Expert
Other ideas?

[Communication Channels]

14. How do you get news about what's happening in Duval or east Gainesville?
15. How do you think CWC could better let people know about / advertise audits?
16. Do you have anything else to add? Anything I left off that I should have asked?

As part of CWC's DEED Grant (May 2016-May 2018)
Presented by E.S. Ott
Monday, September 26, 2016

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Background

This social research was precipitated by CWC having enlisted the help of UF Change Lab to conduct a Strategic Planning session, which took place in May of 2015. After the strategic planning session, and based on the goals of that session, CWC applied for and won a grant to measure and improve the impact of their audits. The goals and objectives underlying this research are listed here for context:

Strategic Planning Goals (May, 2015)

- To **empower** people to manage their energy usage in an intelligent way.
When clients are able to control their energy usage, they save money and can improve other aspects of their life.
- To **conserve** energy.
Through physical and behavioral efforts, clients are able to reduce their energy usage contributing to community-wide conservation.

DEED Grant goals and objectives for CBSM

- Develop a community-based social marketing (CBSM) campaign to complement and enhance CWC's current protocol; carry out enhanced audits and comparing their results in energy savings to conventional CWC audits.
- Design and launch a new campaign to stimulate energy-saving behavior change among households in a targeted Gainesville neighborhood.
- New audit approaches to be tested will include greater follow up with homeowners by neighborhood volunteers, along with a neighborhood-based social marketing campaign that will target attitudes and specific behavior changes, and reduce the barriers to adoption.
- Over the first year of the grant, CWC auditors will carry out 50 energy/water audits in homes in the selected community (the focus of the social marketing campaign) and compare their results with those of 50 conventional audits in homes in comparable Gainesville neighborhoods without the CBSM campaign"
- Develop and evaluate communications materials (infographics, press coverage, web, science cafes).

DEED Grant methods (underlined portions are the CBSM methods for the grant):

The approach of the Engaging Communities for Energy and Water Savings project is to combine community participation with social science research and statistical data analysis from the utility, as well as calculating and marketing carbon offsets. There are several methods that will be used in this approach and they will be combined in an innovative manner. The methods are organized in the following way:

1. Establish community advisory board (CAB) in the neighborhood that will receive the home energy/water audits, follow up from volunteers, and work with the CAB to develop a targeted social marketing campaign. Working with local stakeholders who represent target audiences to help guide, design, and evaluate the program is widely used in CBSM, and an innovative change for CWC and some utilities.
2. Conduct formative research using survey and focus group methodology. Focus groups with neighborhood residents will explore opportunities and barriers to implementing audit recommendations as well as preferred information sources and communication channels. Focus group results will be used to develop a survey to capture audience segment attributes from a broader sample of neighborhood residents. The results of this research will be used to develop a social marketing campaign and to design an enhanced home energy/water audit that will be carried out in the target neighborhood.
3. Implement the social marketing campaign for 6 months and carry out 50 enhanced home energy/water audits in the target neighborhood to compare with 50 conventional CWC audits in neighborhoods without the social marketing campaign. Conduct a follow up evaluation survey in the neighborhood focused on adoption of recommendations, changes in energy consumption behaviors, access to client resources, satisfaction with client services, and community engagement.
4. Establish protocols for summarizing utility use data. Our approach is to use data for the years before, during and after the energy/water audits from the entire population of meters in the utility territory, combine that with property appraiser data for every metered property, combine that with data on which meters participated in each type of home energy/water audit (with dates of participation), and conduct a regression analysis to determine which factors significantly impacted energy use and conservation. From the regression analyses we apply difference of differences techniques to normalize the data for year over year variability (ACB) and to identify changes in individual household consumption patterns relative to each year's baseline.
5. Analyze group meters participating in different kinds of home energy/water audits (with or without social marketing) to test for statistically significant changes in performance of each type. This eliminates the need for direct field measurements and sampling protocols to directly establish selected control groups. From the regression analysis we will apply difference-of-differences techniques to normalize the data for year-over-year variability (ACB) and to identify changes in individual household consumption patterns relative to each year's baseline.
6. Use results of the M&V analysis to calculate carbon offsets from CWC audits and explore potential means to market offsets to generate revenue.

7. Summarize evaluation, utility use data, and lessons learned in final report.
8. Develop educational materials for utilities, best practices manual, and webinar.

Research Goals

- Uncover benefits and barriers to getting an audit, performing conservation behaviors, and being an active volunteer
- Discover appropriate communication channels, content, and strategy for audit, volunteer recruitment

And ultimately:

- Improve audit recruitment- Increase number of audits
- Increase utility savings of audited households- add CBSM techniques to audit process
- Increase volunteer training enrollment and volunteer activity

Methods

Data Collection

5 focus groups:

- 2 with current auditors:
 - n=5, n=6
 - June 15, 2016 & June 22, 2016
- 3 with clients/potential clients, residents of Duval (Community Advisory Board- CAB)
 - n=6, n=9, n=6
 - July 11, 2016 & two on August 29, 2016
 - Three people participated in a group on both days
- Asked mostly the same, but some different questions of each of the groups

Analysis

Audio Recorded FGs

Note takers at FGs

Transcribed recordings and imbedded ideas into transcript

Auditors-- Transcription of at least main ideas, not verbatim

Residents--Transcription much closer to verbatim

Kept running list of campaign ideas

Imported into MaxQDA software

Categorized statements

Created documents based on CWC categories:

Audit (Recruitment, Application, Process, CBSM into process)

Training (Recruitment, Process)

Findings and opportunities

The research findings have been organized by and presented in the following CWC program areas:

- I. Audit Recruitment
- II. Volunteer Training Recruitment
- III. Volunteer Training Process
Audit Process Audit (Recruitment, Application, Process, CBSM into process)
- IV. Training (Recruitment, Process)
- V. Audit form

I. Audit Recruitment

Possible Target Audiences

- **Medium low-income-** Not more than 200% below poverty line (since another local organization, the Community Action Agency's weatherization assistance program, requires that to qualify for their program].
- **Elderly** who fall into at least one of these subcategories:
 - Grandparents in Duval.
 - Those without others to help them maintain their home.
 - Need help navigating process of getting repairs.
 - Need physical assistance with repairs and retrofits.
 - Need help keeping bill down.
 - Have some money to contribute.
- **HUD** who fall into one of these categories:
 - Those paying their bill,
 - Paying utilities over the base covered by some HUD agreements,
 - Need assistance to obtain efficiency products like LED light bulbs and the other CWC audit giveaways,
 - Help conserving for those who don't have to pay the bill.
- People who use Laundromats in/near Duval.
- **Renters-** Don't qualify for many house programs. Highlight that anyone who pays their utility bill can apply for assistance.
- **Landlords-** Possibly little incentive to invest money in properties despite high operating/utility costs to renters.

Barriers to Signing Up for Audits

1. Shame about homes in poor condition; "raggedy" homes (FG4, FG5),
2. Distrust of GRU, Associated with GRU (FG4),
3. Unfairness—eastside paying to subsidize UF students, other homes (nicer, bigger, more energy/water using things pay less than Duval):

FG4 Participant 12/24- *My grandmother who lives alone light bill is \$350-\$400 a month and I can't understand it! She don't cook, she definitely*

don't burn no air conditioner because she's always cold. I don't know where the breakdown is. There's something really wrong.

FG 4 Participant 19- *It's called Gainesville Regional Utilities.*

FG 4 Participant 17/28- *But um, it just, I don't know how GRU or none 'bout dat, but I just, I think they play a big role in keepin' our bills up. On the east side of town I believe our bill is different from 'em over dere on the west side.*

4. Don't think CWC will help,
5. Don't see immediate savings,
6. Time of audit is too long,
7. Utility bill savings don't overcome barrier of having strangers in home for 4 hours telling you it's "raggedy,"
8. Gotten used to it, don't want to change or worry about trying to reduce the bill a small amount,
9. People have other things going on in their life they don't want exposed:

FG3P15 *"I just think, too, that people have other things in their lives they really don't want exposed.... I think if you could find way to meet people where they are, you know.... People who really need help aren't really getting it because they're afraid for one reason or another."*

10. Programs don't meet people where they are (ex: need home insurance to qualify for Habitat brush with kindness),
11. Expect programs where house must be owner occupied to qualify for service, don't think they will qualify,
12. Think they won't qualify for anything, discouraged from not qualifying for other home assistance programs,
13. Too much paperwork to apply,
14. Difficult to send the application (by mail or hard to find the Rebuilding Together office) (p.28),
15. People believe giving information about their homes it may cause problems with their living situation,
16. Private people:

FG3p12 *"Don't want people up in their bidness" (p. 30)*

FG3P12 *"Current pitch is not enough to go all in" (p. 42)*

17. Already know home problems, need help finding solutions/fixing problems NOT identifying them. Need financial and sometimes physical assistance to repair/replace problems.

18. Auditors finding problems but not fixing them leaves clients with bad taste- they ask “what you came here for?” and tell others “they ain’t gonna do nothing for you” (FG3P12, p.44):

FG3P12 “help ‘em with something, you know what I’m saying, so they’re not left with that bad taste like it’s y’all fault that I can’t get my house fixed.” (p.45)

Audit Recruitment Strategies

1. Re-brand/ Change names of “audit,” “auditor,” “client”

FG4 Participant 21- *When you get in a black community [like this one] and you say audit that sounds like the IRS and I don’t want ‘em comin’ in my house, I don’t want ‘em in my bidness.*

FG4Participant 12/24- *Yeah, ‘audit,’ words like ‘audit’ and ‘inspection’*
[laughter]

FG4 Participant 21- *Exactly!*

FG4 Participant 12/24- *Might be words that you don’t want to use.*

Possible names for “Audit”

- Home Energy Tune-Up,
- Home Energy Appraisal,
- Home energy visit,
- Home visit,
- Home Energizer,
- Energize East Gainesville,
- ‘Cha ching!’ sound,
- Energy training,
- Fitness for your home,
- Energy walk and talk.

Feedback on possible names for “audit”

FG3 Participant 12- *I like energy saver survey, that’s kinda’ catchy.*

FG3 Participant 15- *I like the first one*

FG3 Moderator- *Home energy tune up?*

FG3 Participant 15- *I like that.*

FG3 Participant 12- *Yeah.*

FG3 Participant 16- *Yeah.*

FG3 Participant 18- *Energy tune-up sounds good because when I go to get just a simple tune-up versus an overhaul of my car, a simple tune-up is real good!*

FG5- Unidentified Participant- *I like the word appraisal.*

FG5- Unidentified Participant- *If they say “tune-up” they goin’ think you’re comin’ in to fix something. So you better not use that word.*

Most clients and potential clients seemed to like and understand the term ‘tune-up’ as a name for the CWC’s service. There was at least one participant who thought that term would convey the service did more to assist residents solve their home problems. The voice cautioning against using the term ‘tune-up,’ was unidentified by the transcriber. The issue of clients having higher expectations of the CWC service, and being let down when the volunteers leave without fixing problems in their home, is important and was brought up by volunteers and other clients. Still since most clients and volunteers liked the term and thought it made sense for the level of service CWC performed, the names ‘CWC Home Tune-Up’ or ‘CWC Home Energy Tune-Up’ seem appropriate. There are also other ways to possibly solve the problem of clients being disappointed at the end of the CWC service including recapping and focusing on all of the small retrofits CWC was able to perform.

The focus group this feedback also came from was comprised of mostly community members from nearby homes in the Duval neighborhood who had not received the CWC service. There were a couple people who asked directly about the gift card, when it would be handed out, and even one who asked if they needed to stay until the end to receive one, so it seemed there were some people in attendance who were mostly motivated to attend by the \$25 gift card. This group, Focus Group 5, took place at the same time that Focus Group 4 was happening. This was also the only focus group moderated by a CWC board member rather than the moderator of the other four focus groups and the transcriber for all five.

Possible names for “Auditors”

- Energy coach,
- Efficiency coach,
- Energy trainer,
- Energy Detective,
- CWC Efficiency Friend,
- Energy Friend,
- Home Advisor

Feedback on possible names for “auditor”

FG3 Participant 16- *I like energy coach.*

FG3 Participant 18- *Energy coach. I like*

FG3 Participant 12- *Energy coach. But, we are detectives!*

FG3 Participant 18- *Energy detectives?!*

FG3 Note Taker 1- *I was just about to say that*

FG3 Moderator- *I can’t believe I left that off.*

FG3 Participant 12- *We are detectives!*

FG3 Participant 18- *Energy investigator*

FG3 Participant 12- *Yeah, no, we might not want to talk about energy investigator. Detective*

FG3 Participant 13- *No, leave those words out.*

FG3 Participant 18- *Leave out detective and investigator.*

FG3 Participant 13- *Energy coach.*

Possible names for “CWC client”

- "Resident" not "homeowner" since that is a barrier for some people in the past when applying to other programs,
- Energy Saver.

Longer-term, may want to think about “weatherization”

FG 3 “**Weatherization**” sounds like an organization that does more comprehensive services than simply doing audit and changing bulbs etc.

2. Audit Promotion Content

- **Highlight Products over potential savings on bill-** Over \$80 of energy-saving products, learn about opportunities in your home.
- **Promote products, increase their immediate benefit--** Light bulbs-expensive-that can last over 15 years, new shower head, kitchen water flow adjuster (control), and more!
- **Decrease stranger danger and fear of judgment-** CWC: Nice people doing the best we can to help you do the best you can in your home.
- **Residents not just homeowners qualify-** *Any bill payer* or person interested in learning home efficiency and maintenance should sign up and/or attend training.
- **Increase benefits of audit:**
 - Loss framed messages—STOP WASTING money.
 - Prevent expensive flood—know how to turn your water off in an emergency.
 - Prevent expensive appliance failure.
- **Religious Focus--** Give your house a blessing; Let CWC be a blessing in your home this holiday season. Christmas/holiday light exchange of inefficient bulbs and holiday lights for LED string lights.
- **Rotating seasonal messages**
 - **November/December:**
 - Incentive- LED Xmas light exchange.
 - Bless your home with \$avings this holiday season, give your house or apartment the gift of a FREE home energy tune-up that can help brighten your holidays with LED light.
 - Save money on light bill so you can spend it on those you love.
 - **January:**
 - Home energy diet; home energy fitness; resolve to save energy.
 - **February**

- Show your home some love- home energy tune-up.
- Caulking and weather stripping around NFL draft time.
- **March:**
 - College basketball pun about dribbling faucets, prevent water leak awareness.
 - Spring-cleaning: air filters, fridge coils, HVAC compressor coils.
- **Summer**
 - Keep Cool this summer with the help of CWC- Set your AC at 78 or higher for money savings, keep doors and windows closed while air conditioning is running, replace inefficient light bulbs with LED bulbs- they emit much less heat. If you're a resident who pays a utility bill, call CWC today to get free LED bulbs and over \$80 worth of other efficiency products free with a CWC Home Energy Tune Up.
 - Help your family learn to conserve this summer- home energy education for the whole family can help you save money while the kids are home from school.
- **Halloween:**
 - Campaign or incentive/giveaway around Halloween re: phantom loads, energy vampires lurking. Incentive to sign up could be remote control appliance shutoff.
 - Feedback from CWC board member: Ghosts or even celebrating Halloween could be deterrent or possibly offensive to certain religious groups or cultures.

3. Possible Communication Channels for Audit Recruitment

- Word-of-mouth
 - Develop a handout and/or direct ask for clients to encourage their neighbors to sign up for an audit with CWC.
 - Provide an incentive for people referring a friend who signs up.
- Guardian newspaper
 - Local, free.
 - At churches, schools, food bank pick up.
 - Ads for audits and training.
- Tabling events:
 - Eye catching display to attract attention
 - Print photo displaying all of the freebies provided during audit
 - Sign people up on the spot/in an application interview
- Churches in Duval
 - Talk to pastors briefly on a weekday when they don't have bible study.
 - Ask if they help people with utility bills we could help.
 - Ask if they would be willing to promote the program.
 - Ask if they would be interested in an audit for the church.
 - Announce Christmas light exchange.
- Career and Job Search locations

- Can market audit to save money on bulbs, routine maintenance to extend life of appliances, and savings on bill.
 - Can market volunteering opportunity as a resume builder and networking opportunity.
- Facebook
 - Video testimonials,
 - Recruitment videos,
 - Phone-friendly ads to sign up for training and audits,
 - Share video tutorials about maintenance.
- Doctors office waiting rooms,
- Postal service change of address packets,
- Libraries- post flyers, include on Cone Library 211 service handout,
- Laundromats,
- RTS bus advertisements,
- Coupon books (mini mint, buyer's guide, etc.),
- Partner with other social service organizations like Gainesville Harvest, Catholic Charities, Community Action Agency, etc. and reach out to their constituents; enlist these organizations to refer clients to CWC and vice versa.
- Food Banks and food pick-up locations:
 - Information into bags of food,
 - Tabling at food bank pick ups.
- Commercial during the local news:
 - From 5:30-7:00,
 - Recruitment, testimonial videos,
 - Include toll-free phone number for people to call,
 - Answering machine/service to collect information:

FG4 Participant 13/23- Everyone watches the 6:00 news and do a what 20 second, 30 second [commercial]

FG4 Participant 22- That should work.

FG4 Participant 27- Yeah. A lotta people watch the news.

- Public access channel 12 PSA,
- Radio commercial:
 - Magic 101.3,
 - Gospel channels like 101.7 (especially on Sunday):
 - Possible copy for Gospel Radio Station (especially around the holidays, when we offer Christmas light exchange OR xmas light timer): "Let CWC be a blessing for you and your home this holiday season. Call today!" Could also share "CWC is a volunteer-based non-profit that started when local churches noticed they were being asked to help pay utility bills frequently. In the spirit of teaching people how to fish, CWC volunteer energy coaches can

help you stop energy and water waste in your home. Schedule a FREE Home Energy Tune Up today.”

- “Renters OK, Apply Today!”
- ‘Cha ching’ noise or some other catchy sound for radio branding.
- Add “CWC” logo and contact to showerheads, kitchen aerator, prompts, and other possible incentives/giveaways (cups, pens, stickers etc.),
- CWC volunteer Car Magnets- “Call for free light bulbs” or something “Ask me how to save energy,”
- CWC corrugated yard signs for outside of people’s houses during (and possibly after the audit) “FREE Energy Tune Up in Progress- Ask me how to save!” or something,
- Pass out handbills, smaller flyers:
 - Door to door (or group to group, building to building in public housing),
 - Give elevator introduction to flyer rather than mailing or handing it out (something like: “Want to save some money on your light bill? We have some real nice, bright, expensive light bulbs that can last 20 years and we are giving them away when you sign up for a free energy tune up. Check it out”):

FG4Participant 17/28- If you go to somebody house, please take a knock, if you could take a 30[second] to 2 minute just give ‘em a little tip what’s it about. That mouth speak, your mouth speak, which shows a lot than them just tryna’ get a piece a paper they could throw it in the corner. When you speak, just like you was talkin’ ‘bout a while back, “Oh, this right here some tips to help you with your light bill!” and then say, “I think you aughta just read it. Check it out!”

FG5 Participant- Yeah, because if ... y’all woulda sent me something talkin’ bout you wanna audit my house I woulda throwed it in the trashcan. Because I wouldn’t know what it was.

- Get Duval residents to help hand out flyers/canvas their neighborhood,
- Target public housing who pay utility bills with elevator pitch and small handout:

FG4 Participant 19- For instance, out into Woodland Park area or any of the HUD housing areas now that deals with the Gainesville Housing Authority is in the evening. Five or 6:00 in the evening when everyone is home you get both age groups that are out, the kids are out. You’re not tryin’ to have a 30 minute conversation

FG4 Many participants- [sounds of agreement]

FG4 Participant 19- Most of the time, y'all goin' see a group of them together. "Hey, y'all wanna save some money on y'all light bill?" "Sure!" That's it, take a flyer, hand it out.

FG4 Several participants- [sounds of agreement]

FG4 Participant 19- Take a flyer and hand it out and the rest will speak for itself. And the word "free."

[Laughter]

Participant 12/24- Yeah. That's one thing about those communities like that its like wildfire. "Girl these people came out," "What them people was walkin' around fuh?" and there you go.

- Have a HUD community energizer—Free energy tune ups and a cookout, festive atmosphere.
- Flyer guidelines:
 - Use less words,
 - Clear, simple explanation,
 - Attention grabbing design and colors,
 - Larger print, especially for those targeted at older people,
 - Smaller flyers for handouts/door hanger,
 - If at a waiting room location (office, Laundromat) could be a graphic or photo story series to attract attention),
 - Include tear strips and a clear phone number for people to call.

4. Offer Incentives

- Incentives for recommending CWC to a friend,
- Incentive to conserve:
 - Energy savings award,
 - Energy savings contest.
- Giveaways for applying at tabling event:
 - Light bulbs,
 - Shower head,
 - Kitchen "flow adjuster" or "faucet controller,"
 - Sticker, magnet,
 - Worksheets/self-audit information.
- Quantify the amount of efficiency products clients typically get immediately at time of service i.e. "over \$80 of efficiency products."
- LED bulbs,
- Shower head,
- Christmas lights (Nov.-Dec.)—solar lights, LED exchange with timer,

- Power strips- can be single button or remote controlled,
- Dry line or drying rack,
- Retrofits such as:
 - Caulking,
 - Weather stripping,
 - Window films, window seal tape, window sealer,
 - Door replacement,
 - Solar screen for windows,
 - Outdoor solar, motion-sensor lighting (replace outdoor light left on),
 - Roof patch,
 - Dual flush toilet,
 - Power strips-old school and/or remote control,
 - Window blinds.

Possible Products of an Audit

Products are what people get out of signing up for an audit. What would motivate a client to sign up and get one that could overcome all of the barriers we mentioned above. Based on what we heard in the focus groups, below are ideas of what clients want and how we could communicate the most motivational benefit, or product, of the service:

- Honest advice about home,
- Trustworthy advice about options to get help with home,
- Kind, friendly people to help you do the best you can,
- Brighter light that costs less to use and lasts years longer (LEDs),
- Savings to spend more on things you want,
- Conserve enough to not have to yell at grandkids (leave fridge open, lights on, etc.),
- Help with routine maintenance (esp. for elderly/disabled),
- Knowledge of what impacts your bill the most- how to use less,
- Possibility of referral for deep retrofits,
- Blessing for your home.

What would convince you, your friends and neighbors to get an audit?

- Word of mouth—good recommendation from someone,
- Immediate gratification-- discount on utility bill, \$5-\$6 incentive,
- Some motivated for conservation's sake [who? Recent audit clients?],
- Benefit outweighs the hassle,
- Highlight value of efficiency products-- \$XX FREE efficiency products,
- Exciting items: Good light bulbs, shower head, faucet controllers,
- Give interested people an intake interview rather than asking them to fill out, turn in the form (FG3, p. 41),
- People interested in the products (FG3, p.42),

- People feeling like auditors gave them lots of stuff, helped solve simple problems,
- Caulk tubes/guns to leave with homeowner (FG3, p.44),
- Tool or small tools to make recommended changes (FG3, p.44),
- Referral to housing repair assistance program.

II. Volunteer Training Recruitment

Possible Target Audiences

- Handymen in Duval – young and retired men in Duval,
- Duval residents interested in learning how to save in own home,
- Duval residents willing to volunteer as a greeter/ambassador (to introduce auditors to residents) and be a friendly face [help overcome barrier strangers into house and going into strange peoples' houses],
- People who attend Duval churches who would like to help people living near their churches save via an audit,
- People who use Laundromats in Duval,
- Job seekers who visit career centers,
- People who work at hardware stores,
- Youth who could volunteer in ways other than 18+ audit:
 - High schoolers who need service hours,
 - AP environmental science students,
 - Eastside High School (near Duval neighborhood),
 - Lofton High school (computer science students to help with electronic forms) (near Duval neighborhood).

Possible products of volunteering with CWC

- Helping others, empowering others,
- Helping neighbors, empowering neighbors,
- Concrete if small way to help large (earth-scale) problems,
- Immediate action/benefit for homeowner,
- Can have larger, longer-term impacts (for generations to come),
- Solving problems for residents,
- Increased knowledge of home maintenance and efficiency- personal benefit,
- Can use knowledge on own house, those of family, friends,
- Benefits local economy when low-income households have more money to spend on things other than utilities,
- Benefits community, neighbors to have well-maintained homes,
- Nice people, enjoyable process,
- Connections with other people,
- Interesting- always learn something new,
- Something interesting to share when people ask about retirement activities,

- Unique housing assistance program- educational component to help people use their homes more efficiently rather than exclusive focus on physical aspects of home,
- Moving community towards economic, racial justice,
- Assuming moral obligation,
- Avoiding guilt,
- Possible volunteer tax credit,
- Get feedback about how residents were helped by your volunteering.

Communication Channels

- Essentially the same as those for the Audit recruitment from Duval (see Audit Recruitment),
- Emphasize “Volunteer” on recruitment flyers and other advertisements to attract the attention of only those who would be interested to volunteer (so people don’t waste time looking for the salary of the position).

III. Volunteer Training

A. Suggested Improvements

These are ideas that were suggested to improve the audit training:

- Have some fun community-building activity before the training with Duval residents [Raffle off a free CFL light bulb?] Bingo suggested by a participant in FG5.
- Add a training section about the history of CWC, partners, and sponsors.
- Add a section discussing CBSM techniques inserted into the audit form, explain the reasoning behind the techniques and how to use them during the audit:
 - Social norms (signs out front, car magnets, recycle bins, etc.),
 - Listening for motivators,
 - Communicating in personalized, relevant ways, speaking to motivations,
 - Prompts,
 - Commitments,
 - Reminders,
 - Understanding where people won’t/are not interested in changing/compromising, focus on something else:

FG2Participant 9- *As the auditor it can, I think, make or break whether they take you seriously. Whether you are able to frame it in a way that matters to them. Because what motivates me might be different [than what matters to a client]. Being able to present info they can tap into however it is matters to them. [and how much info they need, technical stuff or just the bullet point of to-dos]. Need to be able to tell them how many kWh they’re saving which equates to how much money, or if they need to know when they turn off the switch they’re doing better.*

- Add a training section about teaching residents how to read their utility bills, how to monitor usage over time.
- Add training section on how to use Kill-A-Watt meters to measure usage by individual appliances,
- Add training on digital thermometers (water temp., leak detection, other tech. tools added to the kit, etc.)
- Add a training section on how to estimate utility usage with handouts in resident packet.
- Add section on outdoor landscaping for utility conservation (<http://edis.ifas.ufl.edu/fy1050>; and <http://www.myfloridahomeenergy.com/help/library/choices/landscaping/#sthash.SwZNj1lx.dpbs>)
- Have volunteers click through virtual audit at: <http://www.myfloridahomeenergy.com/>
- Continue to focus the training on familiarizing new auditors with the audit form.
- Save time- ask clients questions and hearing from them what they know.

B. Increase Role-Play

1. Pre-Audit Check-In with resident:

- Instruct new volunteers (and retrain seasoned volunteers) that checking-in with resident at the beginning of the audit is important and to:
 - Ask if residents have concerns,
 - Ask if residents know of issues or repairs that need to be done,
 - Ask what they are currently doing to save energy and water (if anything),
 - What they are or have done to repair their home,
 - What are they most interested in,
 - Read and clarify what clients said/wrote during application/application interview about what they are most interested in, have done, need most etc.
 - Reassure them you will check those things out and/or avoid explaining what they already know.
 - Will write down everything audit team notices
 - Can't make any promises about getting work done
 - May be able to offer some insight about other services or may be able to refer them to an organization that might be able to help.
 - Knowledge is power, so it's good they're getting it checked out.
 - Explain audit overview, sections in the form,
 - Ask them to follow along if they are able so they can learn and explore with the auditor.
 - Should be fun and will try to be efficient and get out of hair in a couple of hours.

- Can take up to three hours, especially if they have lots of questions for the auditors.
 - One auditor will keep them on track with the form and one will talk with homeowner and walk through the retrofits.
- Go over immediate benefits- what they will get that day:
 - Efficiency products we leave, can list products/ what they will do/attempt to do that day on the particular audit (light bulbs, water heater pipe insulation, clean fridge, aerators, showerhead, etc.),
 - Knowledge about how to maintain appliances to help them last,
 - Maintenance (clean fridge coils, aerators, check filter, check for water leaks)
 - Make note of issues you share with us/we find and can give you advice and discuss options.
- Will go over conservation behaviors—ways they can use things in their home efficiently.
- Explain that they may not see any immediate monetary savings on the next bill,
 - Explain what they are likely to see if they use their home in a more efficient way for the month following the audit/GRU billing cycles following the audit.
- Figure out what the client is interested in, what they want for their home, what motivates them—speak to that motivation.

2. Cultural Sensitivity/ Building Trust and Relationship with Resident

Respect the Resident

- Respect their space,
- Let them set the boundaries of the audit- where not to go,
 - Ask before doing anything,
 - Explain what you are doing and why,
 - Take time explaining what and why to the resident,
 - Respect their time-- be able to shift gears from slower, communicative to faster, getting done when homeowner/auditor fatigues,
 - Highlight what they are doing well,
 - Be nice to pets,
 - Smile a lot,
 - Share personal experiences about making the change you suggest to them, what you did, and how much you saved,
 - Point out what they're doing well.

Resident is the Expert

Residents may be embarrassed about needing repairs in their home they know about but can't afford. Don't want to belittle them by telling them what they already know (be conscious of social and cultural dynamics between the volunteer team and the clients. Avoid explaining things they already know and speaking in ways that could be

considered talking down to a client. The volunteers should be sensitive to clients and as much as possible, be aware of their own potential biases of the client especially if they are a different race, gender, or economic status.

While volunteers can't promise to fix major repairs, they can and should continue to document the problems in need of major repairs, share they are doing so with the client, and that they may follow up with them. They can reassure the clients the volunteers won't waste time telling them things they already know, though they may explain some different options for using their home and appliances. The volunteers will install some efficiency products where appropriate, possibly clean some things to make them work better, and perform basic inspections to check the status and efficiency of their home and appliances. Connecting on a human level is also very important:

FG2P8: "I think it's so important to focus on the connection with the people. I think about it and CWC's primarily, like 95% white folks going into a black community. There's an opportunity there for an education piece on how white folks go into these spaces. I don't know what that looks like. I feel when trying to communicate with these people that you're my friends, you're my brother from another mother kind of thing. Really trying to make a connection will spur the engagement or not. Are you just another do-gooder trying to do something for the community or is there some type of real connection that's happening here."

3. Audit form Completion and Technical Information

- Role-play to engage resident and have them perform the audit maintenance tasks if they are physically able and willing.
 - People will hopefully experience and learn some maintenance tips and tricks they can be reminded to perform later.
- Speak in ways that are non-directive (don't "should" on people).
- Explain their opportunities, offer your experience (or others') with their opportunities.
- Ask about energy and water use behaviors; Ask residents about the electronics and appliances they use the most. Do they ever leave them on overnight? If yes, power strip technique for convenience (can leave modems, cable boxes off in case they want to have faster start-up time).
- Bring in CBSM techniques (norming—most people who choose to [clean their fridge coils twice a year/ do this recommendation/stop wasting that energy, see a decrease on their bill of a few dollars a month]).

4. Audit wrap-up

- Use good-bad-good model for giving feedback—starting with appreciation, explaining what concerns were discovered, what resident might do about concerns, end on a positive—list the maintenance and freebies volunteers gave.

- Try to leave resident feeling good.
- Have good customer service, good manners, smile, thank them, etc.
- Talk with clients about behavior- audit changes a few things, helps them “burn” less, but the way they use those light bulbs is just as important as what bulbs they have—could be canned closing speech or bullet points for auditor and client to go over what they learned. Auditor could write that down on the form as an indicator or likelihood of changing. Closing could ask a small index of questions that assess likelihood of changing/doing recommendations, then ask if the client would like to commit to changing anything directly. Then how the auditor/CWC can support them in making good energy choices.]
- Be clear and concise.
- Review with client in sensitive way since some auditors have found it hard/awkward to tell someone they need to spend money they don’t have to make their house safe; bill is high due to late/non-payment fees.
- Go over conservation behaviors—ways they can use things in their home efficiently.
- Explain that they may not see any immediate monetary savings on the next bill.
- Explain what they are likely to see if they use their home in a more efficient way for the month following the audit/GRU billing cycles following the audit.
- Get a commitment about behavior.
- Set a time for following up with them.

5. Troubleshooting

How to deal with cynical clients, tough situations such as:

- When client doesn’t want to or isn’t able to follow you,
- When client doesn’t seem willing to change behavior,
- When landlords won’t make a repair that impacts resident’s energy usage:

FG2P11- “One client had a situation where we identified there was mold growing up the wall. He asked, “what can I do about that?” Didn’t seem like the window was leaking, it was up from the roof or something. That wasn’t directly related to energy, but it was in the sense that the landlords couldn’t seem to fix it and told them to keep the fan running all the time to keep the air stirred up and keep the mold and mildew from growing. Of course that’s something that isn’t directly about [what we do as CWC volunteers]. That’s something we’ve been asked about.”

6. Follow-up with residents

- Relationship building,
- Ask if they were able to install all the efficiency products or if they need help with something,
- Accountability check on their behavior commitment,
- Ask how they are liking the changes made during the audit (is their water hot enough? Etc.),

- Do they have any questions?
- Do they need help with something?
- Do they want to commit to save in another (additional) way?

C. Continuing Education/Training for Volunteers

- Could partner with Alachua County Waste Alternatives and go a tour of the waste management facility.
- Partner with conservation organizations around town for field trips. Alachua County Waste Alternatives for waste audits, Levida Brown transfer station tour; Department of Environmental Protection for watershed info, conservation info; Gainesville Regional Utilities tour; Alachua Conservation Trust; Sweetwater preserve for watershed info; solar energy tour, etc.
- Caulking, weather stripping, other retrofit team training.

IV. Audit Process- CBSM Into Audit

CBSM techniques inserted into the audit form, explain the reasoning behind the techniques and how to use them during the audit:

- a. Social norms,
- b. Listening for motivators,
- c. Communicating in personalized, relevant ways, speaking to motivations,
- d. Prompts,
- e. Commitments,
- f. Reminders,
- g. No convincing-- Understanding where people won't/are not interested in changing/compromising, focus on something else.

a. Social Norms

- Volunteer car magnets:
 - Ask me how to save energy and water,
 - CWC- Nice People Helping You Do the Best You Can,
 - CWC Volunteer Home Advisor,
 - CWC Home Efficiency Helper.
- Yard Sign to indicate to neighbors:
 - Free Home Advice,
 - Light Bill Lowering happening now,
 - Ask me how to lower your light bill,
 - Ask me how to save energy and water,
 - Ask me how to get FREE light bulbs,
 - Free Home Energy Tune Up in progress,
 - CWC- nice people helping you do the best you can.
- Involve residents (make this the norm of the audit process):
 - Clear invitation to participate in audit if they are physically, mentally able,
 - Say that most residents like to follow along and take notes on what we find, tips, and reminders,

- Offer them a sheet for notes and a pen to follow along, write questions, instructions, reminders, plans, and their commitments in their own words,
- Develop and offer them a worksheet that they can follow along with that has sections for each section of their home/audit form:
 - Those who agree may be more likely to do something else later in the audit,
 - Not everyone will want to write and that is OK, don't insist.
- Enlist help of family members:
 - Ask kids to help recycle,
 - Ask kids what they do to save energy and water.
- Invite residents to share CWC with a friend:
 - Leave them an audit form and/or brochure for them to share with others,
 - Say most people hear about CWC from someone who had a good experience.

b. Listening for motivators (benefits, barriers)

- Why did the resident want the audit?
 - Want help with repairs,
 - Want to save money on their bill,
 - Want to save money,
 - Want free products,
 - Need help with maintenance,
 - Someone they knew had one.

c. Communicating in personalized, relevant ways, speaking to motivations

- Want help with repairs:
 - Reflect what they want, make sure you understand what they want,
 - Assure them you wrote that down on the form,
 - Should you know of any organization that may be able to help, tell them about that organization,
 - Emphasize all of the free efficiency products you were able to install, all of the work you did,
 - Follow up with them at a later time to check in.
- Want to save money
 - Associate energy saving behavior with money for something the person wants:
 - Kids- may want new expensive shoes (Nike "Jordan's") or something else—keeping lights off helps parents save for that,
 - Focus on monetary savings of turning off lights, power strips,
 - How to stop waste,
 - Emphasize behavior-energy cost link,
 - Explain how routine maintenance can keep appliances alive longer,

- Explain energy star appliances can save in operating costs, check for rebates.
- Want free products,
- Need help with maintenance:
 - Share how much less LED lights need to be replaced,
 - Talk about all of the tasks that you perform for them.
- Someone they knew had one:
 - Ask if they would share with someone else.

d. Prompts

- Light switch plate covers (See examples A-J)

***FG3 Participant 15-** I've always tried to be energy efficient, but finances have really brought that home. Now I just do it automatically. Sometimes I think, "why can't I turn a light on if I really want it on?" But I think I'm so thrifty every other day, it really doesn't matter if I turn it on if I really feel like I need it. I think the lights are the main thing that I have found helpful- I can see a difference in my bill.*

- Help associate energy use (behavior/demand) with savings on "light bill,"
- Prompt for behavior after audit,
- Would something small like a glow-in-the-dark "cha ching!" on a sticker when the lights go out be an incentive? Would kids think it is good to flicker the lights on and off in response to it?
- Thermostat sticker onto thermostat with temps for Summer and Winter,
- Water conservation prompt—Reusable CWC bathroom cup, office tumbler,
- Energy audit yard signs.

e. Commitments

- Wrap-up commitment ask:
 - Auditor could write that down on the form as an indicator or likelihood of changing.
 - Closing could ask a small index of questions that assess likelihood of changing/doing recommendations.
 - Ask if the client would like to commit to changing anything directly.
 - Ask how the auditor/CWC can support them in making good energy choices.

f. Reminders

- Follow-up education booster/reminder:
 - Following up with former clients at specific times of year when the weather is changing and people can turn off their air conditioners/keep

their heaters off, turn on their heaters, program their thermostat so that they conserve based on the proper weather schedule.

- Could be reminder calls, visits, PSA's, emails, targeted Facebook posts, or mailings.
- Can include client satisfaction follow-up as well:
 - Ask client in two weeks how the aerator pressure and the water heater temperature is working for them—especially if they are elderly or mobility challenged and will struggle to change something themselves. Explain you will ask them in two weeks (or a month) now that is working and adjust it later if they want. Can send someone back to adjust the heater a little.

g. No convincing

- Explain as best you can with relevant motivators,
- Ask why resident doesn't think the suggested change will work to understand,
- Don't waste time trying to convince someone.

Possible Conservation Behaviors

To promote in audit, follow ups, and/or reminders:

- Keep doors and windows closed while AC is running,
- Know how to read, read utility bill every month,
- Keep lights off during the day ("open the curtains and use God's light"),
- Keep fridge door as much as possible,
- Turn off TV's (and other electronics) at night,
- Thermostat set at 78 during the summer,
- Thermostat set at 68 in winter,
- Turn off lights when leaving a room,
- Turn off fans when leaving a room,
- Unplug appliances when not in use,
- Put TV's, electronics on a power strip, turn off when not using,
- Use less hot water,
- Set water heater at 120 degrees,
- Turn off water when brushing teeth,
- Navy shower,
- Program thermostat,
- Repair windows (at least with temporary window film),
- Off-peak energy use.

V. Audit form

- Develop a clearer key.
- Ask about the status of the audit form category
- Examine the doors for cracks and gaps. What is the door status? Check one: "OK," or "Needs improvement- explain"- recommendation: "share X with resident"

Introduction section

- Add a question where the auditor asks client if they are aware of any issues or problems in their home (open response box for auditor to write that down)— follow up question—what has been preventing you from getting that work done? Uncover barriers, possibly what client values.
- Add questions: “Is there any room that is off limits? Anything dangerous in the yard I should know about?”
- Add a question: “Do you (resident) have any questions before we start?”

Time-reduction

- Have different color sheets and/or
- Clear markings distinguishing inside and outside, kitchen, bathroom, bedroom, use/behaviors, introduction, wrap-up, and commitment sections of the form.
- Streamline and clarify.
- Asterisk things that are required and must be performed even if limited time.
- Horizontal lines to navigate page faster.
- Have a digital option.
- Create an excel spreadsheet of the audit form so auditors can use their own laptop without the internet to enter the information electronically during audit.

Outdoor portion of form

- **Save Time:** Organize the outdoor inspection portion by side of the house rather than category of thing to inspect.
 - This will help auditors to walk around the house only one time and complete all sections of the form, and reduce time spent outdoors.
 - **Reduce Barriers to Audit:** Reducing the time outside reduces the time auditors spend in the hot, cold, and possibly wet weather, which will make the auditor’s experience better.
- Have a page on the audit form for each side of the exterior of the house (front/back/side/side, but don’t need to be labeled).
- Offer a space got the auditor to sketch what the side of the house looks like (possibly graph paper on that portion) and indicate where there may be problem areas.
- Can offer another page to draw the roof of the house, birds-eye view if people feel comfortable sketching that. Could be a tool for talking with the resident.
- Go through a checklist of all of the outside elements to look for on that one side (Foundation type, roof type, condition from this side, number of windows, number of doors, windows, spigots, exterior outlets, if electrical meter is located there, if there is a gas meter there, etc.)
- Add section of outdoor landscaping for environmental conservation (trees on S and W sides of house for summer cooling and winter protection (from: <http://edis.ifas.ufl.edu/fy1050>)
- Add landscaping near the house to picture if that would help by shading the house guidelines from:

<http://www.myfloridahomeenergy.com/help/library/choices/landscaping/#sthash.hSwZNj1lx.dpbs>

- Ask about outdoor irrigation, if they do irrigate, ask if they know about water restrictions.

Other Services

- Have they contacted or worked with any other housing assistance programs?

Add Behavior Section

Computer

Ask if they use a computer in their home/if they have internet- is email a good way to contact them?

Would they be interested in in a program to help them learn how to use the internet a good way to contact them?

Iron/curling iron tips

Ask about use of irons, curling irons and laundry appliances, if they have/use them, you can share to bundle ironing to iron many things at once because it's an energy hog and can make your house hot in the summer. Curling irons should be unplugged when not in use.

Add Conservation Behavior Handouts

- Add Tip Sheets per room or high usage/high cost appliance
- Fridge Tips:
 - No hot stuff/set alarm for one hour after dish has finished, cover on counter, away from thermostat, put in fridge after one hour or when at room temperature (just put it away within 3 hours for food safety.
 - Keep closed,
 - Keep mostly full, room for air circulation,
 - In air conditioned space,
 - Clean coils.
- Water heater tips,
- HVAC tips,
- Washer tips:
 - Full loads,
 - Cold water,
 - Laundry at night/off-peak.
- Dryer tips:
 - Air dry when possible.
 - Ask if they want a clothesline (possible future retrofit or give-away program).
- Kitchen appliances, and
- Electronics:
 - Put on power strip,

- One button to turn them all on/off,
- Remote, timer, smart, etc.

Donation Ask

Ask residents if they would be interested in making a donation to help defray the cost of their audit, which can allow someone else to receive one. Totally OK if they don't want to, I think it makes sense to ask someone if they want to help others.

VI. Priority Next Steps

Audit training recruitment improvement

- **Duval Residents-** compare communication channels, decide which sound cost effective, develop campaign targeted at specific audience (men in Duval- Get home efficiency training valued at (\$\$) for FREE* (*for Duval residents), learn how to perform CWC energy tune-up and be a blessing for a neighbor in need, etc.
- **Duval Pastor outreach- volunteers-** We have a program and want to offer our training to people in Duval. It is a volunteer program but has valuable training, good resume builder, and can be a great service and blessing for residents we help. Do you have any able-bodied people who might be interested in helping their neighbors make their homes more efficient? Would you be willing to ask your congregation if they would like to participate in our training?
- **Duval Pastor outreach- residents-** “do you know of anyone in your congregation or outreach who struggles to pay their utility bill? We want to give them efficiency products to help reduce their use without sacrificing their comfort as part of our program... would you be willing to announce us to your congregation? How can we reach those people in need of this program?

Marketing Mock-ups

Audit re-brand for training

Auditor: Home Advisor, Energy Coach, Efficiency Coach

Audit: Home Energy Tune-Up, Home Energy Appraisal

Flyers for training registration

Flyers for audit application

Prompt stickers

Tabling sandwich board/display

Auditor Car magnets

Audit corrugated sign

Storyboards for audit campaign PSAs

In time for training

Audit re-brand for training

Auditor: Home Advisor, Energy Coach, Efficiency Coach

Audit: Home Energy Tune-Up, Home Energy Appraisal

Audit training improvements from list

CBSM crash course for volunteers in training

Appendix:

Examples of Light Switch Prompts

FG4 Preferences: FG4: I- eye catching colors (green and yellow); E- keep it simple; H looks like a decoration, won't pay attention to scroll-type writing.

FG5: G, B, D, J, E; add glow-in-the-dark can be an added incentive to turn it off. Turning the light off is really like turning the glow on. Turn on the glow. Can help tie light switch use (behavior) and "light bill."



Appendix E: CBSM Changes Report for Volunteers

Prepared by Emily Ott
December 2, 2016

Methods

Focus groups were conducted with volunteers (2 groups, n=5, 6) and clients/potential clients in Duval neighborhood (3 groups, n=6, 9, 6). Audio recordings of the groups were transcribed and uploaded into MaxQDA qualitative data analysis software and analyzed for ideas to improve program impact.

Findings

Opportunities to improve the impact of CWC's program were found in several areas including client recruitment, volunteer recruitment, volunteer training, the service process, and the "audit" form. **Highlights have been listed below and responses to research findings are on the next page.**

What we heard from volunteers:

People like about volunteering with us because they:

- ✓ Make connections with interesting people
- ✓ Make a tangible (if small) impact on global-scale problems
- ✓ Answer a moral call to serve
- ✓ Work for economic and environmental justice by helping the poor
- ✓ Help the local economy
- ✓ Find it interesting, always new
- ✓ Have fun to solving problems and helping people, and

Volunteers have more fun, feel better when residents are engaged, and
Want to know what happens for residents after they leave.

What we heard from residents:

Barriers to signing up for energy efficiency service:

- "Audit" sounds bad, scary
- Doubtful of savings on bill
- Distrust of strangers
- Don't think renters or apartments will qualify
- Discouraged to apply by failing to be approved by other programs
- Know what's wrong with homes- don't need it pointed out, need help fixing it
- Not enough savings/immediate benefit to incentivize people to sign up, spend hours with strangers in their home, and...

Many people are interested in efficient products, immediate monetary benefits, Duval is a close-knit, diverse, and has/is a strong faith-based community, Some interested in knowing how much specific appliances cost to run, and Some want follow-up.



Responses to Research in the CWC Process

Semantics changes:

- ☐ “Home Energy Tune-Up” not “audit”
- ☐ “CWC Home Energy Coach” not “auditor”
- ☐ “Resident” or “client,” but not “homeowner”

Norming CWC in communities—increase visibility, build legitimacy and trust:

- ☐ Yard sign
- ☐ Volunteer vehicle magnet
- ☐ Coupon to facilitate positive word-of-mouth referrals

Many of you already do things listed below! That’s great—Keep it up!

For you these won’t be changes so much as reminders and emphasis on their importance!

Pre-Tune-Up Questionnaire:

- ☐ Ask what residents know is wrong,
- ☐ Ask why they want a Tune-Up
- ☐ Listen for motivators, what they want—speak to their wants/needs when giving recommendations

Engage residents:

- ☐ Treat them like the expert they are in their home, how they use their home
- ☐ Invite them to follow along on a resident worksheet on which they can write notes, ideas, recommendations, etc.
- ☐ Show them the cost to run/phantom loads/CO2 using an Energy Monitor
- ☐ Report back to “couch clients” periodically

Wrap-Up:

- ☐ Refer back to what residents said they wanted, explain how the things you recommend can help them get what they want when possible
- ☐ Review all of the things you and your other Energy Coach were able to do
- ☐ If necessary, emphasize that you documented problems bigger than CWC scope, may follow-up with them or refer to another org.- no guarantees
- ☐ Be sensitive, kind, clear, and leave client with a positive impression of CWC
- ☐ Explain and leave coupon for FREE \$80 to encourage positive word of mouth

Follow-Up: (This is something new we will try for the next 6months or so!)

- ☐ During wrap-up—Review the list of behaviors to conserve with the client, highlight
- ☐ During wrap-up—ask, “Do any of these seem doable? Which one(s)”
- ☐ During wrap-up—if yes to above question, ask, “Would you like me or someone from CWC to follow-up with you in a couple months about that?”
- ☐ During wrap-up—write down what behavior(s) they are willing to do, want a reminder about or to ask questions about later so anyone could understand and give them a call about it
- ☐ Two months later, you or someone from the office can follow-up with them.



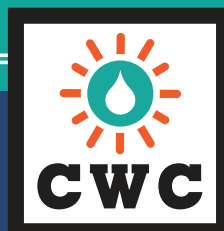


Saving Money and Resources, Together

Best Practices for Using Social Research
to Improve Non-Profit Service Organizations

By Emily Ott, 2018

Best Practices manual brought to you by
the Community Weatherization Coalition and
Gainesville Regional Utilities



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Message from the President of the Advisory Board, Community Weatherization Coalition



This manual is based on lessons learned from a grant-funded project that helped to improve participation in the Community Weatherization Coalition (CWC), a volunteer-based coalition in Gainesville, Florida, that provides home energy/water tune-ups to help reduce utility expenditures and save resources in local, low-income households. The two-year grant entitled *Engaging Communities for Energy and Water Savings: Improving Measurement and Effectiveness of Energy/Water Audits for Low-Income Neighborhoods* was supported by the American Public Power Association (APPA) through our locally-owned municipal utility, Gainesville Regional Utilities (GRU), as part of the APPA DEED (Demonstration of Energy & Efficiency Development) program.

Using funds sub-contracted to the CWC, we adopted Community-Based Social Marketing approaches – focusing in particular neighborhoods and performing research and focus groups – that helped to address barriers and enhance benefits of energy saving educational programs. These lessons and approaches could be useful to non-profits and utilities in other communities interested in supporting volunteer-based weatherization or other services for low-income households.

In 2005, local church leaders in Gainesville reported that people were paying \$300-500 each month for utilities, up to 25% of their income. Six local agencies reported receiving an estimated 250 calls every month, or an equivalent of 18,000 residents a year, requesting assistance with their utility bills. Recognizing that this energy burden threatened housing sustainability, local church leaders affiliated with Action Network reached out to Gainesville Regional Utilities (GRU) to support the development of the CWC to take practical action to address this problem and save resources.

A study by University of Florida researchers in 2017 documented that while the average Alachua County household spent 5.5% of income on home energy costs, low-income families spent an average of 22% of their annual income on energy expenditures, primarily because their homes were older and less efficient (Knowles and Jarrett 2017). Low-income households face high energy and water costs, primarily because they inhabit older and less efficient homes. The CWC's home energy/water tune-up program helps people to overcome economic barriers by reducing their bills and freeing limited income for other uses.

These lessons and approaches could be useful to non-profits and utilities in other communities interested in supporting volunteer-based weatherization or other services for low-income households.

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With support from GRU, members of this coalition met monthly, and systematically worked to develop structures and procedures for functioning as a volunteer coalition. In 2008, grants and donations allowed the CWC to hire a part-time Volunteer Coordinator and to begin operations. The CWC was founded in 2008 as a local coalition of organizations and individuals from the faith community, the University of Florida (UF), Gainesville Regional Utilities, local government, and the non-profit community.

CWC's first 23 volunteer energy auditors were trained by February of 2008, and trainings were held twice yearly from 2008-2011 to continue to train and develop volunteers. A loss of funding and of key personnel caused a decline in activity from 2012-2013.

Beginning in early 2015 the CWC renewed its activities with a full-time Program Coordinator, a small volunteer Executive Committee, and an Advisory Board with representatives from key partners. Members of the CWC volunteer Advisory Board include experts with decades of experience in conservation programs, sustainable buildings, renewable energy, and energy efficiency (<http://communityweatherization.org/37-2/staff-and-board>).

Our board also includes representatives of local government sustainability staff, the faith community, the local municipal utility, and key non-profit partners. Many of our founding members are still active ten years later as volunteer trainers, mentors, and energy coaches carrying out tune-ups. We also have continued to recruit and train new groups of volunteers twice every year.

Coalition members developed and implemented a volunteer-based model of training and deployment of energy "coaches" to carry out comprehensive home energy surveys or "tune-ups." CWC home energy/water coaches spend 2-4 hours in each home, working closely with residents to inspect the building envelope, major appliances, lighting, water consumption, and safety issues.

We review the client's concerns about energy and water use, discuss their utility expense history, and how energy use and behavior affect the charges on their utility bills. We install energy/water saving materials

including efficient light bulbs, showerheads and aerators, pipe insulation, carbon monoxide detectors (for those with gas appliances), and outlet gaskets, and take other actions such as cleaning refrigerator coils and AC filters. We share dozens of tips for how to reduce utility expenses, improve safety, and increase comfort, providing a detailed report and recommendations for residents to commit to taking actions to reduce energy/water use in their homes. We also partner with other agencies that can assist with home repair, upgrading appliances, and carry out next-level retrofits or energy upgrades (caulking, weather-stripping, minor repairs, added insulation, etc.).

Since 2008 the CWC has trained over 200 volunteer energy coaches to educate residents on how to read and understand their utility bill and consumption of water and energy, to install energy-saving improvements, and to apply best energy/water use practices residents around their home to save further.

We emphasize education to empower residents to understand how their usage of energy and water can affect their utility bills, comfort and safety, and encourage them to make positive changes to conserve their use of energy and water in the home over the long term. The annual savings (in electricity, natural gas, and water usage alone) for homes served by the CWC from 2010-2016 averaged \$255 per household, and these savings persisted and even increased over the following 5-6 years.

Ten years after its founding, CWC energy coaches have carried out over 900 home energy/water surveys, saving residents, churches and support agencies hundreds of thousands of dollars in local utility bills, over five million gallons of water, and over a million kilowatt-hours of electricity, among other savings. Rigorous data analysis by University of Florida researchers shows that these savings persist several years later in those homes. In partnership with local non-profit We Are Neutral (WAN), we are working to calculate the value of carbon offsets generated by these savings, and how they might be translated into income on the local carbon offset market.

The CWC's main target population consists of local low-income households, with a focused effort in the Greater Duval neighborhood, working with other partners including Alachua Habitat for Humanity,



University of Florida, Santa Fe College, Gainesville Police Department, Neighborhood Housing Development Company, Community Development Agency, the City of Gainesville, and other local partner organizations. A neighborhood Community Advisory Board was created in 2016 to support the CWC's energy and money-saving programs, and the Greater Duval Neighborhood Association awarded the CWC "Favorite Partner" in 2017.

Duval and other neighborhoods targeted by the CWC concentrate primarily low-income, African-American families who live in older houses with out of date energy systems. CWC energy survey clients include single mothers with young children, elders (40% of Greater Duval's population) living on fixed incomes aging in place, veterans, and both homeowners and renters. We seek to reduce expenditures on utilities, lower environmental impacts, and enhance the affordability of older housing, helping these families live sustainably in their homes. Home energy/water tune-ups carried out in 103 homes in Greater Duval neighborhood over the past 10 years resulted in an average savings of \$313 in utility expenses the subsequent year. Multiplied by 103 homes, this figure suggests that Duval residents saved approximately \$32,239 in utility expenses each subsequent year due to CWC tune-ups.

The work of the CWC contributes to decreased local use of energy and water, reduces carbon emissions to improve air quality and reduce climate change threats, and helps to pave the way for the transition to renewable energy alternatives in our community. We seek to reduce "leakage" of money from the local economy resulting from reliance upon non-local energy sources, while increasing the funds in the pockets of local resident by lowering utility bills and shielding residents from fluctuating energy costs. Lessening our community's environmental impacts is a least-cost investment in the face of growing energy consumption, helping our locally owned municipal utility to avoid the need for future new power plants as an important step in the transition to renewable energy for our community.

In order to improve our effectiveness, through the DEED grant (2016-2018) the CWC and partners sought to improve the effectiveness of volunteer home energy tune-ups we provide for low-income households. Literature on home energy/water audits and retrofits for low-income

households shows a tendency towards very low participation rates, minimal behavior change, and disappointing energy savings per return on investment. This project addressed these problems directly through a team approach involving a local utility (GRU), researchers at the University of Florida, and a non-profit coalition, the CWC, working together in targeted neighborhoods

Objectives included formally outlining the successful approach that the CWC has developed and used for the last 10 years; measuring and verifying the impact that CWC's audits have had to date; developing a community-based social marketing (CBSM) campaign to complement and enhance CWC's previous protocols; carrying out enhanced audits and comparing their results in energy savings to conventional CWC audits; calculating and marketing carbon offsets from home energy audits; and producing materials to document results and best practices for home energy/water audits.

The CWC recruited participants through its existing volunteer weatherization program, and worked with social marketing specialists to design and launch a new campaign to stimulate energy-saving behavior change among households in a targeted Gainesville neighborhood. Community-Based Social Marketing approaches were used to better understand the views, perspectives, constraints and opportunities of our client population and our volunteers.

How could we make our message more appealing? How could we attract more clients and volunteers? How could we increase buy-in, satisfaction, and concrete impact for our clients? As documented in this manual, the CWC used this social "action" research to improve and refine all aspects of the CWC program (Sago 2000).

We strengthened relationships with low-income neighborhoods with strong local organizations. We improved the language we use and re-branded ourselves with a new logo, tagline, and new promotional materials. We revamped our training and the home energy/water survey process. As a result, we increased the number of client applications and volunteers trained, raised the level of volunteer participation, and enhanced our community profile, increasing our fundraising success. Our clients reported gaining valuable knowledge, changing their behavior to



save energy and water, and to reduce utility expenditures, and expressed strong satisfaction with CWC's services.

The CWC project team documented the lessons learned, tools used, and best practices for weatherization programs, and shared them with those interested in implementing similar projects in their communities. We presented a summary of the activities and the results of the grant in a 45-minute Webinar (available at <https://www.youtube.com/watch?v=bxjl4N-DexY>).

In this manual, we present what we learned about best practices for using social "action" research to improve and refine the work of service organizations. We hope that our experience will provide useful insights for other action researchers and service providers.

Marianne Schmink

Community Weatherization Coalition: <https://youtu.be/I30BZPCK6zl>
Saving Money and Resources, Together.



Introduction to Community-Based Social Marketing

CBSM is a useful form of “action research” focused on using social science methods to feed into practical change.

Community weatherization programs, and many non-profits that serve people in their community, can increase the impact of their program using social science research. Community-Based Social Marketing (CBSM) is one method for conducting social research and translating that into strategies to increase program impact. CBSM is a useful form of “action research” focused on using social science methods to feed into practical change.

CBSM can be helpful because it offers a framework of traditional marketing concepts that can help organize information and identify specific opportunities to make small changes to a program that yield results. These marketing concepts include target audiences, benefits, price (barriers), place (where and when to communicate), and promotion (how and what to communicate to achieve specific outcomes) (Monaghan, n.d.). At the core, CBSM is a method non-profits can use to listen to program participants, discover the benefits of and barriers to their behaving in ways a non-profit wants them to, and increase the benefits while decreasing the barriers to the clients.

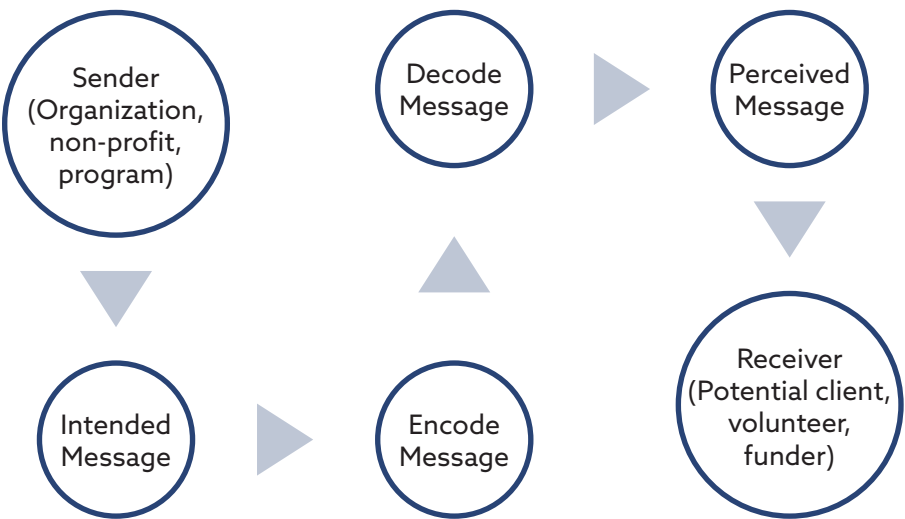
One of the major assumptions of CBSM is that the clients of a program are the experts in how and what will influence them to participate in a program and perform behaviors recommended by a program. To make a program work or work more effectively, it is very important to talk with the clients and potential clients of a program. This manual discusses some best practices for conducting social research, and offers suggestions and examples for transforming insights gained from conversations with clients into program improvements.

In this manual we have shared some best practices for conducting efficient social research, our experiences using CBSM in the context of a community weatherization non-profit, and some marketing materials we developed based on the results of social research, which have helped increase the impact of our program. We hope this can be a resource for non-profits looking to improve, and interested in exploring social research and CBSM as a way to develop strategies and improve a program.

Why Conduct Social Research?



Social research is a valuable tool when developing program strategies and marketing. How clients and potential clients understand an organization's external communications is arguably more important than how the members of the organization feel about them. No matter how accurate or compelling those inside an organization think their external communication materials to be, if potential clients interpret them differently, a program's enrollment or other metrics of impact can suffer.



Communication can seem simple, but a closer look reveals that there are several steps we may not typically consider. Even a program's communication through marketing materials can be broken down into several steps (see Figure 1 below). We may be tempted to view communication as a direct, linear, and obvious process where we say something that someone else hears and understands. That is, unfortunately, often not the case.

As the sender of a piece of communication, we intend to say something, "encode" our message by choosing words we think will convey our intended meaning, and then things get interesting. The receiver of our communication, whether a potential client, volunteer, funder, or some other audience of the program, "decodes" the words we chose, and perceives the meaning behind our message in their own way. Without checking in with those audiences and confirming that they perceived a message as intended, the organization may be unintentionally conveying different and possibly incorrect ideas.

Using focus group research with clients and potential clients, CWC was able to find several miscommunications including the one detailed in Figure 2 below. While CWC board members and volunteers wanted their client recruitment communications to inspire potential clients, people

Figure 1:
Communication Process (adapted from Wolf, 2008).

with financial need and inefficient homes, to sign up for a free, resource-saving, utility bill-lowering, and fun energy efficiency inspection of their home, focus group research revealed that potential clients actually received the exact opposite message than CWC intended!

Research with actual clients and potential clients of CWC services revealed that calling the home energy efficiency service an "audit" caused clients to be wary, skeptical, and even scared of the program. With this insight, CWC was able to work on new, better-received messaging. With the help of a CBSM coordinator, the CWC gathered more detailed information during a series of focus groups, analyzed those data, consolidated insights from the focus groups, brainstormed possible changes, developed potential marketing materials and strategies, and tested those materials and ideas with our client group. In the particular case in Figure 2, CWC transitioned away from using the term "audit" and started using "tune-up" to name and describe the organization's flagship program and home energy and water surveys.

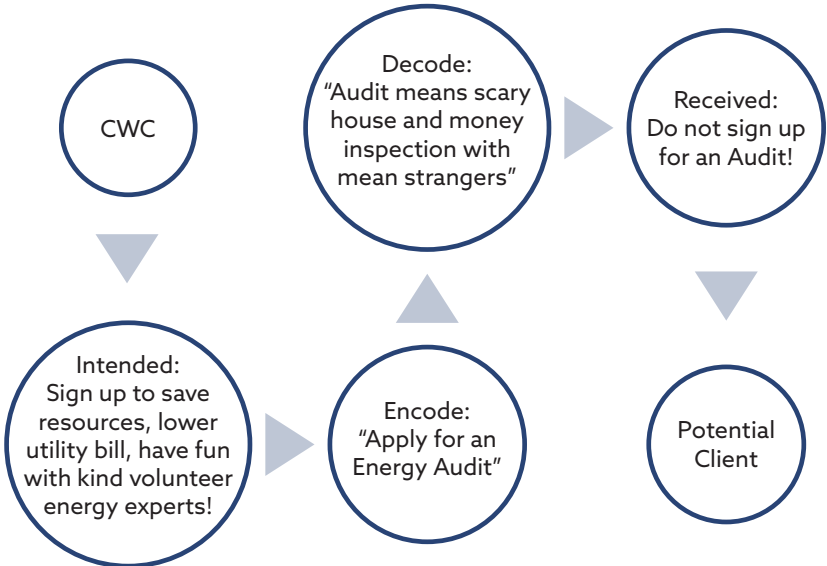


Figure 2:
How Potential Clients Received CWC's Invitation to Apply for an "Audit"

Figure 2 provides only one example of a list of barriers to clients applying for and hosting a CWC home energy tune-up that we discovered through a series of focus groups with CWC volunteers, clients, and potential clients. Social research uncovered barriers and opportunities that led to research-driven changes to the program and communication materials, which has contributed to improvements in the program and its impact. Based on this experience, this manual discusses best practices that organizations, non-profits, or other service programs can use to conduct CBSM action research, analyze data, develop research-driven strategies, and measure their improvement in reaching potential clients.

How to Conduct CBSM Action Research

Planning: 10 Things to Consider When Planning a Social Research Project

These considerations are organized roughly by order of the importance we place on them, but each of these considerations will likely be revisited several times throughout the planning process. CBSM action research is more of an “iterative,” or back and forth, process than it is a linear one.

1. Develop Partnerships

One of the best things an organization preparing to do social research can do is to build relationships with other organizations. These partnerships can prove invaluable and increase the effectiveness, scope, and practical application of research. One of the major reasons we were able to conduct social research that led to measurable impacts on our program was because we had helpful partnerships.

The CWC has partnered with governmental and non-governmental organizations, non-profits, and for-profit businesses, which have helped us to better achieve our goals, and conduct research to help grow the impact of our organization. These partners have included:

- University researchers, faculty, students, and administrators,
- Non-profit organizations related to home repair, environmental sustainability, and other social service providers,
- For-profit companies with a vested interest in environmental sustainability and/or home repair,
- Governmental organizations and public servants, and
- Grassroots community groups and neighborhood organizers.

Having a diverse array of partners can provide expertise, community connections, and other resources that contribute to a successful program as well as a helpful research effort. Partners can also help identify and secure possible funding opportunities to support the program and research efforts.

In the case of conducting social research to increase the impact of a non-profit program, the saying holds true that “if you want to go fast, go it alone; if you want to go far (or farther-reaching), go together”.

“If you want to go fast, go it alone; if you want to go far, go together.”

2. Enlist the Help of Community Organizations and People in the Audience

If there is a community coalition, preferably grassroots, that is working on the same or a related social problem/issue, or with the audience you want to hear from, building a relationship with them can assist you in enlisting their help to recruit research participants. Community organizations can be an invaluable resource and can help you spend less time trying to get people to show up, and more time refining questions to get the best information possible.

One of CWC’s ongoing relationships is with the Greater Duval Neighborhood Association (GDNA), with whom we partnered for our latest research effort. GDNA helped increase the impact of our program by spreading the word about our organization and services and helping us recruit clients for the program, as well as recruiting research participants for our social research.

This in-group recruitment meant we had less work to do to get participants to our focus groups, and participants likely felt comfortable enough to give us critical feedback. Hearing what people don’t like can be some of the most helpful information an organization can get when conducting social research.

3. Review Literature

When an organization and their partners are exploring how social research can help improve the program, a good place to begin the process of developing a research project is to see what other organizations have done.

Conducting a formal, academic review of literature pertaining to a program or issue can be great if possible, but even a less formal search online can yield helpful information. Knowing what questions other researchers or organizations have asked can help answer questions or offer insights that may work in a different context, for another organization.

A literature review can also provide inspiration for questions to be duplicated and compared, and can identify questions that have not yet been asked.

4. Determine Program and Research Goals

Understanding your program is an important first step to planning a social research effort to improve it. In our case, a strategic planning meeting helped identify the need for understanding client perspectives in order for the program to yield more utility savings for more people. The wants, needs, and goals of the CWC program that were discussed during that strategic planning meeting led to CWC leaders applying for and winning the grant that funded research and the creation of this Best Practices Manual, among other accomplishments.

Program Goal:

The main programmatic goal was to help low-income clients save energy, water, and therefore reduce their utility cost burden.

Research Goal:

The goal of the social research we set out to conduct was to increase the impact CWC had on the communities it served, resulting in more energy, water, and monetary savings.

During this phase of the social research project, clarify the project goals, but keep them broad. Once the research project has started different program needs may become apparent. Be clear in the broad goal of the social research project.

In our case, while we set out looking for specific behaviors or changes we could help clients make in their homes to increase their energy and water conservation, we realized quickly there were other, more basic ways the program needed to be improved to increase the impact. We needed to attract more clients to enroll in the program and we needed to build a larger base of trained volunteers to serve more clients. By having the broad goal of increasing the impact of the program, we were able to pivot

and focus on using our social research to understand why people were and were not enrolling as clients and volunteers and to gain insights on how to get more to participate.

5. Narrow the Scope of Marketing Research

A program cannot do everything for everyone, and trying to appeal to the “general public” can lead to weak, ineffective communication and marketing. We chose to focus on a specific audience and determine what they thought of the program, how we could better meet their needs, and how to better communicate what we wanted them to do regarding our program in a way they would receive well.

Choose the boundaries of your research intentionally. Whom do you want to participate and why? How can you recruit those people to participate?

In our project we decided to conduct research in one geographic area that had several characteristics that made it a good choice. The neighborhood was comprised mainly of ideal clients for the CWC program: the homes in the neighborhood were predominantly older than 20 years and the residents were mostly low-income.

Another key factor that made it a good area to focus our research was that residents in the neighborhood had been developing a grassroots community effort to revitalize the area, which we recognized could help us conduct quality research. Our support for these efforts over several years of monthly meetings and activities, had allowed us to gain the trust and support of the neighborhood leaders.

The residents leading the community revitalization effort appreciated the CWC’s partnership in revitalizing the community by providing home efficiency assistance. These community leaders also helped with research logistics like providing feedback and suggestions on times and locations people would be most likely to attend, as well as helping to recruit participants. That insider support helped the focus groups we conducted to be well attended and even recruited other clients who later got CWC tune-ups.



6. Determine the Best Way to Get Answers to Your Questions

Developing good questions, collecting good data, and using that data are all important and complex tasks. It can take researchers years to learn how to draft effective questions and there are skilled researchers who can help a program with their craft. When possible, consider partnering with a social researcher by hiring them with program funds, writing them into a grant, through an internship, or by recruiting them as a volunteer. Someone with experience can play a huge role in efficiently collecting usable data and transforming that into information and insights a program can use to improve.

When hiring or otherwise enlisting expert help is not an option, the best practices below can help get a program started on the path to developing valuable insights from quality research. This is by no means an exhaustive list, but it will hopefully provide a solid foundation for programs beginning the social research process.

One of the first steps in developing usable insights from data is determining what questions to ask and how to ask them. Fortunately, as a literature review will reveal, there are many ways to ask even similar questions and elicit valid, interesting, and helpful responses from research participants. The method chosen for conducting research and asking questions of respondents should be based on issues a research team is exploring. Two major categories of research and question type, for example, are qualitative and quantitative research.

a. Qualitative Research and Quantitative Research

Quantitative research can help understand quantities and frequency (Fritz, 2018), and was an important complement to CWC's social marketing research. Through a partnership with University of Florida researchers we carried out a parallel research program that yielded rigorous quantitative measures of the impacts of CWC home energy/water tune-ups on savings in dollars, energy, and water during the years following the tune-ups. To complement these, "economical and precise tools," (Patterson & Williams, 2002, p. 22), we adopted qualitative

approaches that would allow us to research people's thoughts, opinions, and reasons for behaving in certain ways.

Qualitative research is a great option when conducting social research because people and the socio-political reasons that drive their opinions and behaviors are complex (Flick, 2009). This type of research can uncover feelings, opinions, relationships, patterns, and gather multiple perspectives on a given issue (Fritz, 2018). Qualitative, open-ended questions also leave room for the research participant to express ideas they think are important to the topic that a researcher may not have thought were related let alone relevant (see Patterson & Williams, 2002).

Qualitative research may not generate statistical nor replicable results (Crotty, 1998; Flick, 2009; Glesne, 2006), but instead helps to uncover deep insights, and in our case, find out ways we can improve our programs. People are complicated, and qualitative social research can be a powerful tool to discover what people like and don't like about your organization or program, and can uncover explicit and implied ways to improve it.

b. Focus Groups

Focus groups are essentially group interviews, typically with 4-10 participants and 1-3 researchers, usually taking between 1-2 hours (see Morgan, Krueger, & King, 1998). They can be an appropriate choice when exploring an issue that would benefit from discussion among participants. When appropriate, focus groups can be made with groups having homogenous characteristics, or they can be shuffled to mix people up on some relevant characteristics to get a diverse group.

In our case, we chose to conduct five focus groups to help better understand how several audiences felt about the CWC program, and why they did or did not participate.

We first conducted two focus groups with CWC volunteers who were "seasoned" volunteers, who had been engaged and volunteering with the program for several years or more, as well as newly trained volunteers. The next three focus groups were conducted with residents of the

focus-neighborhood, and were comprised of both former clients and potential clients who had not yet had the service.

c. Interviews

Interviews typically involve a researcher asking either closed-ended quantitative or open-ended qualitative questions (or a combination of both) to one other person. Interview questions can be relatively focused and can strive for statistical significance, or can seek in-depth information and knowledge about individual and personal experiences (Hennink, Hutter, & Bailey, 2011). This can be appropriate when exploring beliefs, perceptions, motivations, feelings, emotions, and reasons why people believe certain things and behave in certain ways (Hennink, Hutter, & Bailey, 2011).

We used follow-up phone interviews as a way to assess clients' satisfaction with the CWC tune-up service, their knowledge gain, self-reported behavior change, and ideas for improving the program. We started and ended the interviews with open-ended questions, and the core questions were quantifiable and used to capture data to evaluate the program.

These questions were like "did you feel the energy coaches that visited were respectful of you and your home?" Most clients answered with a simple "yes," though there was room for them to offer their own responses, or for us to capture a sound-byte that could be used in future marketing materials. The questions to assess knowledge gain asked clients to explain what they had learned about a given topic rather than just say "yes" or "no" if they had learned something.

This qualitative information was used to interpret whether the client had learned what we intended about a given topic. That information was quantified to identify which topics most clients could identify learning about, and which topics needed more explanation.

d. Questionnaires and Surveys

Questionnaires and surveys can be administered in many ways including

in-person, over the phone, by mail, or online (Harrison, 2007). Pre-testing the questions with others in an organization and people in or similar to the target survey audience can be valuable to test if others understand the questions in the way they are intended to be decoded (Harrison, 2007). There are many helpful guides for choosing appropriate survey methods and developing quality survey questions, so take advantage of those resources (see Harrison, 2007).

e. Other Techniques

There are many other techniques to collect valuable information to help an organization make informed decisions. Observation, or paying attention to client behaviors, for example, can be very helpful (Fritz, 2018). Take detailed notes of what people do, how they do it, and what they are saying when they interact with your program or organization (Fritz, 2018; Richards, 2011).

This systematic collection of actual behaviors and statements can help an organization move past individual anecdotes and get a fuller picture of what more people do and say, which can provide insights on how to improve (Fritz, 2018). Marketing experiments, or testing different version of promotional materials, may also be helpful for an organization (Fritz, 2018).

7. Develop Good Questions That Yield Good Data

When collecting data by asking people questions, the quality of the data will depend on how well the questions have been crafted. In general, questions should be easy for participants to understand (Harrison, 2007). For questionnaires or quantitative data collection methods, questions should be worded as simply as possible, avoid technical jargon and vague terms, and be focused on one topic to make sure they are measuring only one thing at a time (Harrison, 2007).

For qualitative methods like focus groups and interviews, questions should be open-ended and move from general questions designed to get participants comfortable with talking to more specific questions deeply exploring topics (Krueger and Casey, 2000). After icebreaker

questions, the questions can transition into key questions, covering the most important topics and research questions (Krueger and Casey, 2000). According to Krueger and Casey (2000) focus group (and interview) questions should:

- Sound more conversational than formal,
- Avoid jargon and use words the participant(s) would use and understand,
- Be easy for a moderator or interviewer to say and ask,
- Be clear, short, and simple to understand,
- Be open ended, allowing people room to elaborate and share their thoughts and reasons behind their answers,
- Be focused on one topic or be "one-dimensional,"
- Be accompanied by clear instructions.

8. Conduct Ethical Research

To conduct research with people in an ethical way, there are a few things to consider and guidelines to follow designed to inform and protect research participants (see Smith, 2003). Unethical research on human subjects in the past, mostly in the medical field, has led to rules, laws, and ethical guidelines for informing, protecting, and compensating people when they participate in research. "Egregiously unethical research" like experiments on people by Nazi Germany during WWII, the study of hepatitis transmission by the Willowbrook hospital for mentally impaired children, Tuskegee Syphilis Study, and several other cases paved the way for ethical standards for research with people (Moon & Khin-Maung-Gyi 2009).

While most social research that environmental non-profits will conduct not be even close to medical research in the risks it presents, it is still important to consider the potential risks and costs to our human research participants.

Consider how to keep participants safe from emotional, social, economic, and any other conceivable consequences from participating in research. Discuss research methods with trusted advisors, experts, and other people who can provide feedback on keeping the research and data

management protocols as safe and ethical as possible. During the research process, be transparent with participants about the research requirements, potential risks, costs, and benefits of their participation. Develop data management procedures before collecting data to keep personal information confidential. Compensate participants for their time, ideas, and travel as fairly as possible, including providing food and even monetary compensation.

We submitted a research plan including preliminary question guides to the University of Florida (UF) Institutional Review Board (IRB) since four of the researchers on this project were associated with UF at least at the start of the project. The members of this IRB review all research project methods and assess how researchers inform participants of their rights, responsibilities, the possible risks associated with the project, and whether the risks to participants outweigh the potential benefits of the research.

The UF IRB confirmed that our focus group and survey research posed little to no risk to participants and that we adequately informed participants of the potential risks.

Procedures we used to inform and protect research participants included having focus group participants read, listen to, and sign an informed consent document before participating. This document included:

- The time commitment expected of them (around two hours),
- Researchers would protect their confidentiality by not associating their responses with personally identifying information in any reports,
- Researchers could encourage, but not guarantee that other participants in the focus groups would maintain the other participants' confidentiality,
- There were no direct benefits to participating other than the pre-focus group dinner and the \$25 gift cards in the case of the focus groups with CWC clients,
- The focus groups would be audio recorded, and
- That the focus group audio and written transcription would be protected in secure computer files and drives.

9. Make It Easy for People to Participate

Getting people to give up time in their busy lives to participate in your research project can be a significant challenge. Using social marketing concepts at the participant recruitment stage and striving to reduce the barriers to people showing up and participating can be helpful. Consulting with members of the community or target audience for the research effort can provide valuable insight on what can help people attend. Even without the help of community members, it is always prudent to consider how to make it as easy as possible for people to attend your research activities.

Some ways to do that are listed below:

a. Location

Choose a location that is well known to the audience or easy for them to find and reach. This could be a public meeting space at a community center, school, or library that is located within walking distance of audience members or on a bus line, for example. In our case, we met at a community center in the Duval Neighborhood to conduct focus groups with residents, and the majority of people who attended walked there.

b. Time of Day

Be aware that the time you schedule or attempt to schedule a research activity can impact people's ability or willingness to attend.

Many focus groups or interviews will likely need to be scheduled on an evening during the week to get solid participation since many people work during the day and have plans or want to relax on the weekends. In our case, our focus groups took place in the evenings, and our phone interviews were more varied, taking place in weekday evenings and weekend mornings. Depending on the audience being recruited to participate in research, there may be another time of day that works best for people to participate. Retirees, for example, may prefer to meet later in the afternoon.

c. Time Commitment

Honoring research participants' time is very important. For many people, participating in research is essentially giving up their time and providing their opinions, both of which are valuable. Recruiters and researchers should be clear about the time commitment required to participate. Typically focus groups require a two and a half hour commitment, including 15-30 minutes for checking in and checking out, and two hours of time for questions and answers.

Researchers should also keep the question and answer process moving at a reasonable pace and need to be prepared to wrap everything up at the stated end time.

d. Compensation

Another way of honoring time is that, when possible, people should be compensated financially for the time and feedback they give to the research effort. Budgeting and planning for financial compensation for research participants is prudent. The amount of money you choose to compensate participants should be based on your budget as well as what would be considered a reasonable yet inspiring amount of money.

In our case, we chose to provide \$25 gift cards to focus group participants, which was attractive enough to incentivize participants, but not so much that people were skeptical of the project having a "catch".

e. Food

Providing food at research activities can be a benefit enough for many people to participate. On the other hand, not providing food could prove a barrier for some people deciding against participating the day of the research activity. Don't make someone choose between spending another couple hours hungry or breaking a commitment to attend a research activity. Plan to have snacks or even a simple meal at your research activity and let recruits know.



Sometimes restaurants have special rates for catering for community causes or may even be willing to donate a portion or all of the food for a research event.

f. Other Considerations

Depending on the audience with whom you plan to recruit to participate in your research, you may also want to consider planning or coordinating transportation, childcare, or any other factor that could make or break someone's ability to participate. In our case, we did not provide childcare at our focus groups with residents, but we did allow people to bring children to the focus groups with them. The few kids that did attend ate the dinner we provided and remained in the large room in which the focus groups took place, but did not participate during the research process.

10. Plan How to Record and Capture Data

Before undergoing any research activity, think about how data will be recorded and captured. We audio recorded our focus groups and interviews using digital recorders, which allowed us to have a record of what participants shared with us, to which we could refer back.

α. Note Taker(s)

We also had a note taker attend each focus group and write what people said, impressions, and ideas or questions they had in the moment based on what people shared. Having the moderator and another set of eyes and ears on the research team observing the research process is very valuable. A focus group moderator has to keep the conversation on time, ask follow-up questions when appropriate, encourage quiet participants to chime in, gently ask talkative participants to allow space for others, and focus on the content of what is being shared.

After the focus group concludes, the note taker and moderator can debrief about what happened during the activity as well. The note taker will likely have noticed different things than the moderator and reflecting on the responses and dynamics of the focus group can yield valuable insight and synthesis (Gelsne, 2006, pp. 103-104). By discussing what

we thought were major points of the focus group immediately after it happened, it was helpful for us to quickly identify themes, gems, thoughts, and remaining questions, and plan for the next group or data collection effort.

b. Flip Charts

In some situations, recording what people share on large pieces of paper so everyone in the room can see what has been captured can add value to the activity. Participants of planning initiatives, for example, can feel better understood faster, and secure in seeing their point captured in writing (Kaner, Lind, Toldi, Fisk, and Berger, 2007, pp. 62-73). For our strategic planning meetings with CWC volunteers and board members we used flip charts as a tool to help everyone organize the groups thoughts, identify themes, and prioritize strategic initiatives.

c. Audio Recording

Audio recording research activities captures a detailed record of information that simply cannot be captured with a written record. So much information is communicated in tone of voice, for example, which can help researchers accurately decode a participant's ideas.

Of course, participants should always be informed that audio recording is taking place, and be offered the opportunity to decline being recorded. This method of capturing data is arguably less invasive than video recording and can capture a lot of information in a relatively small data file. If electronic storage space is an issue, audio recording produces an audio file that tends to be larger than a text or word document, yet smaller than the file size of video recordings.

d. Video Recording

Video recording can provide more information than audio recordings, including body language and subtle, silent reactions to questions or other research participants' responses (Gelsne, 2006, pp. 63-65). Video recording should, of course, be disclosed to participants with an option to decline being recorded. We did not video record any research activities,



but depending on the target research goals, questions, activities, and audience, that may be an appropriate method of capturing information.

e. Archive

Organizing and archiving data is important and the methods and logistics needed to do so should be determined before data has been collected (Richards, 2011). How will files be stored so that everyone on the team who needs to access them can do so? How will files be named so they will be easy to identify? Are any computer programs needed to convert the files based on the type of computer or data analysis methods that will be used?

The answers to these questions may be simply that one person will maintain all transcripts in a file on their computer, but should still be thought about before data collection begins. Have a plan so data can be accessed efficiently whenever needed.

f. Confidentiality

Maintaining your database in a secure manner is another important consideration before data collection begins. Usually data should be stored in a private folder on a password-protected computer, but sometimes transcriptions or other data records should be redacted of all personally identifiable information pertaining to the research participants (Lee and Hume-Pratuch, 2013).

Think ahead and have a plan to keep participants' personal information protected.

Collecting Focus Group and Interview Data

Focus Group research can be a valuable, cost effective way to gather information about a program from the program's clients and other stakeholders. To make the most of this research method, follow these recommendations:

1. Prepare!

Refer back to your research goals—hold onto those broad concepts and redirect conversations back to that when necessary. Familiarize yourself with the introduction, housekeeping items you should share with participants, and your question guide. If needed, enlist a support team of at least one other person who can help sign people into a focus group and who can take notes and share their thoughts with you later.

2. Hire a Skilled Moderator If Possible

A skilled and experienced focus group moderator or in-depth interviewer can help manage time and participants, listen, probe, and redirect, when appropriate, and elicit quality data from participants. When possible, hiring or at least consulting with a person experienced at directing focus groups is advisable. A researcher new to moderating focus groups can follow the following guidelines:

3. Best Practices for Moderating

Be respectful, speak clearly, feel when to step in and redirect and where to ask probing questions to explore an area further. Moderating is like a dance and an art and it take practice to learn how to co-create good data with your participants. According to Kreuger (1998) focus group moderators should sincerely believe that participants have valuable insights and knowledge to share and:

- Be interested in what participants have to say,
- Guide the discussion but not share their own views or otherwise shape the group's opinions, and
- Be ready, willing, and even appreciative of unpleasant views and negative feedback.

During a re-cap of the focus group immediately following its conclusion, when listening to and transcribing the audio recording, and during the analysis process, researchers should think about their influence on focus group participants and interviewees. For more details on how to effectively moderate focus groups, see Kreuger (1998).

4. Document and Record as Much as Possible

Recording an interview or focus group with an audio recorder is a great idea. This can allow you to focus on keeping the conversation on time and being engaged with research participants rather than trying to jot down or remember what they say. Of course, you should always let those with whom you are conducting a focus group or interview know that you would like to record them and it is good practice to get their expressed consent to do so.

Sharing with your participants that you want to record the conversation because the information they will provide is very helpful and you don't want to miss anything is a good way to frame the need to record and to build trust with them.

Other than getting a more accurate record of participants' responses by audio recording, this can also serve as a training tool for researchers to listen to their own, recorded voices. Reviewing the recording can help identify missed opportunities to ask clarifying questions or probing questions to delve deeper into a topic, which can be used to prepare for the next focus group or interview.

5. Be Flexible

Flexibility is important for any social research effort. Something will likely go differently than planned. Expecting that and making a informed decision to choose something different will hopefully allow the project to continue successfully.

When things go differently and an organization can be flexible and adapt, things can work out well or even better than originally planned.

When things go differently and an organization can be flexible and adapt, things can work out well or even better than originally planned.

As an example, we originally intended to get a baseline of the home energy efficiency knowledge, awareness, and behaviors of the target audience of our research project, by surveying residents in the Duval Neighborhood. Around the same time our pre-survey would have been conducted, the Greater Duval Neighborhood Association (GDNA) planned to conduct their own survey of residents in the neighborhood, which had different goals and outcomes than the one we had planned

Rather than push forward with our own agenda, we collaborated with the GDNA to collect different data than we originally intended.

Our support helped the GDNA program, built trust among our collaborating organizations, and provided CWC with a list of interested, potential clients. Later, the GDNA helped us recruit participants for our focus groups as well, which reduced the time it would have taken us to recruit clients without their introduction. The outcome could have been much less positive had we pushed ahead with our own agenda and not been as flexible.

6. Refine Your Questions as You Go or Strive for Consistency

Comparing questions across focus groups can provide valuable insights (Kreuger and Casey, 2000), but there are some instances when it is appropriate and advantageous to refine and change at least some of your questions (Richards, 2011).

If a question doesn't spark good conversation or worse, is annoying, offensive to the research participants, or provokes a negative reaction, that question should be removed or modified before the next focus group or interview (Richards, 2011). You can also add a question, if in reviewing and reflecting upon a previous focus group or interview, a new question comes up or you want to explore a new concept more deeply the next time you speak with research participants (Richards, 2011).

For example, during the first focus group with clients, several participants mentioned being skeptical of CWC's advertised, annual utility savings for various reasons. Later in the same focus group, a participant mentioned

that they and their neighbors were really interested in the immediate benefits of the tune-up (see 'Present the Data in a Helpful Way' section below). Questions were added to the focus group question guide for moderators, assessing whether efficiency products would motivate research participants, their friends, and neighbors, for subsequent focus groups to help verify that idea.

This proved to be a helpful insight that led to a specific communication strategy to shift the focus of client recruiting materials away from long-term utility bill savings and onto the tangible, immediate benefits of the free LED light bulbs and more (See 'Marketing Material Examples' below).

Questions can also be changed if an outside event that might impact responses takes place during the data collection time period. CWC follow-up interviews were conducted from January, 2017- April, 2018, during which Hurricane Irma made landfall in Florida (September, 2017), and impacted CWC's service area.

Follow-up interviews went on hold for two weeks while the recovery process took place, and when interviews resumed, researchers asked clients about whether or not the hurricane impacted their family and home. This helped us to be sensitive to interviewees' home situations, build trust and solidarity with the interviewee, and collect data directly related to the home efficiency of the client during that period.

Researchers have choices when it comes to deciding whether or not to keep questions consistent across all interviews or focus groups. It may be appropriate to keep all or most questions the same to compare them across all interviews or focus groups (Kreuger and Casey, 2000). Seeing how everyone responded may be interesting and helpful in generating insights (Kreuger and Casey, 2000).

In other situations it may be appropriate to adapt and change questions as circumstances change, to seek a deeper understanding of a given topic, or to explore new routes of questioning as researchers learn new information (Richards, 2011). Be ready to make those decisions based on the research goals, research questions, and what transpires during the research process.

7. When to Stop Collecting Data

There are no hard and fast rules as to how much data you should collect for your social research project, but ideally you will collect as much data as you need to meet your research goals (Richards, 2011).

For conducting focus groups in a perfect world, for example, groups should be conducted until "saturation," or until no new information comes out of the new groups (Fusch and Ness, 2015). In reality, though, social programs and non-profits often operate with finite and limited resources.

Most likely, you will collect data until you have performed as much data collection as you said you would when you applied for a grant, until your research budget is exhausted, or until a time-based deadline. Collect as much data as is needed to accomplish the project goals or do the best with the resources available.

Analyzing Data: The Hard Work of Turning Information Into Insights

Even the most seemingly simple quantitative questionnaire requires review, analysis, making sense of it, and sharing and discussing what it means with the rest of the team.

Data analysis is a critical part of any research project. All too often people complete surveys and interviews, giving up their time and other resources to answer questions that are never used. Every effort should be made to collect only what data will be analyzed, and to analyze and use the information that an organization collects.

There are many resources available, ranging from the very theoretical to the very pragmatic, which can help researchers learn how to do the work of qualitative analysis (See Works Cited and Resources sections below). When determining a plan for analysis, consider the project goals, the questions an organization wants to answer, and the parameters of the project like time, money, and other resource constraints.

When possible, hire someone experienced and skilled in conducting social research. Even the most seemingly simple quantitative questionnaire requires review, analysis, making sense of it, and sharing and discussing what it means with the rest of the team. Further, having an expert take on the task of conducting research, rather than adding more to the to-do list of someone within the organization, can make a big difference. They have likely already learned from lots of mistakes and can avoid common pitfalls as they process, organize, and distill a mountain of data into a presentation or report.

CWC was formed in a college town (Gainesville, Florida, home of the University of Florida), and has had the good fortune to have lots of highly educated people to help build and run the program. When it came to developing a project to help measure and improve the impact of the CWC program, we were able to find many qualified people interested in helping. We planned the project components and wrote in the hiring of a CBSM coordinator to conduct social research and most of the analysis, which helped in many ways.

Having a person dedicated to data management, analysis, and reporting can help with each of these important parts of research. The best practices below can help those responsible for managing the data, doing the work of understanding and distilling the data, and presenting it in a meaningful way.

1. Manage and Organize the Data

Develop and follow a plan or protocol for managing and organizing data. As soon as possible, during or immediately following a data collection event, record information including dates and other details (Lennie, Tacchi, Koirala, Wilmore, & Skuse, 2011). This metadata, or information about a data record, should include details such as the date and time of the data collection, where it was collected, and from whom (Lennie, Tacchi, Koirala, Wilmore, & Skuse, 2011). Researchers should use only general descriptors of participants, when relevant, and participant codenames to protect respondents' identity (Lee & Hume-Pratuch, 2013).

These details should be written in a systematic, detailed way so that the analyzer can review and understand the context of the data collection, which may impact how they and other researchers interpret and understand the data during the analysis process later (Briney, 2015).

Once the contextual details have been recorded and/or added to the data record itself, the data record should be stored in a safe and organized way. This could mean uploading each audio file from a digital recorder to a computer or flash-drive and saving them with a uniform file name including the type of data and date it was collected, or saving notes in a folder.

There are many different ways to organize data files once they are collected; the key is to develop a plan of where to group data records so they can be found and used later. Organized and well-archived data can be simple to retrieve and use when doing the analytical work in the research project.

2. Do the Work of Understanding and Distilling the Data

Analyzing quantitative data will likely involve numbers and some mathematical calculations to describe and possibly test for statistically significant relationships among variables. There are many resources available to help researchers prepare quantitative data files, choose analysis methods, describe data, calculate statistical tests, and report



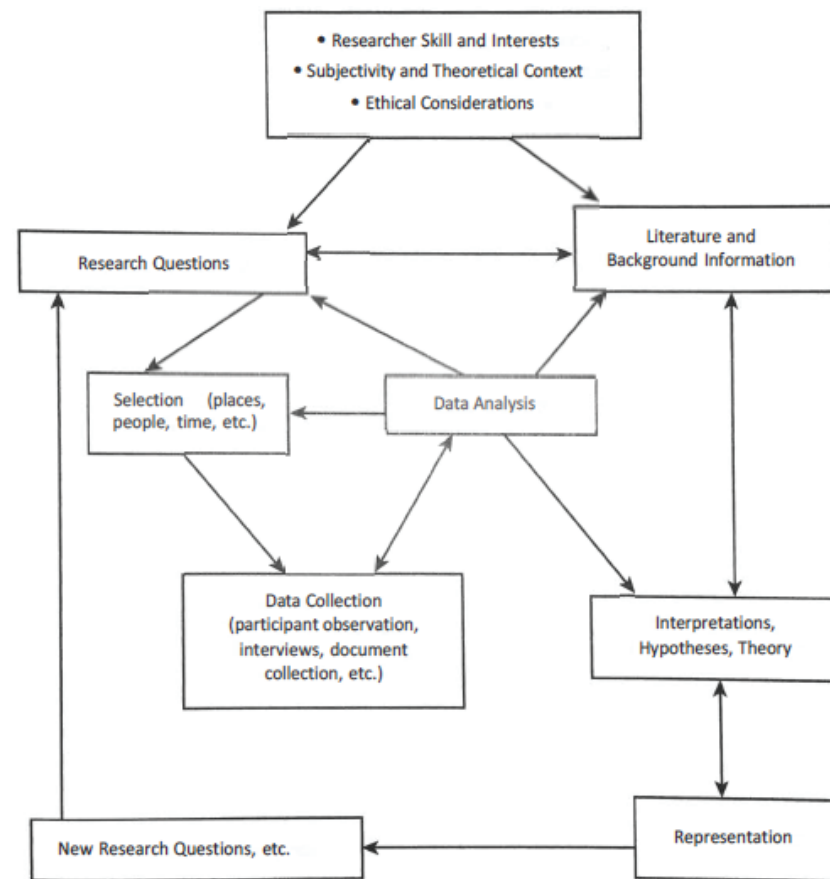
numerical data that represents variables and ideas (see Silver & Metcalfe, 2018).

Analyzing qualitative data is an often more-diverse process than mathematical calculations, since qualitative researchers are the instruments of analysis (Richards, 2011, p. 49). While there are no formulae for analyzing qualitative data (Lennie, Tacchi, Koirala, Wilmore, & Skuse, 2011) and the researchers' thoughts impact the findings and results of the data analysis process (Richards, 2011; Flick, 2009), there are best practices that can help.

Qualitative analysis will always involve reducing or distilling the raw data down from (what sometimes feels literally like) a mountain of audio and text files to something understandable, meaningful, and useful for other

people and decision makers within an organization (Richards, 2011). Overall, researchers will process the data to understand it and eventually begin the process of highlighting examples and distilling the data to its meaningful essence (Richards, 2011), then researchers will move towards presenting the data in a way that can help others in the organization make decisions.

Qualitative researchers should keep a written record of how they worked to understand the data, their assumptions, and how those could impact their understanding of the data (Richards, 2011, p. 49-50). Part of qualitative research is explaining the perspectives of the researchers and presenting enough of the raw data as examples for someone else to experience and assess (Richards, 2011).



Glesne (2006, p. 47) The Qualitative Research Spiral

Figure 3:
Glesne's (2006) Qualitative Research Spiral Diagram

The analysis process is presented in a somewhat linear way, but in reality, qualitative analysis is an iterative, or back-and-forth process, moving between data records, draft reports, conversations with other researchers and stakeholders, and many other meaning-making steps. An examination of the qualitative research process as depicted by Glesne (2006) in figure 3 below, shows analysis situated at the heart of the process, connected in dynamic ways to almost every other aspect of this type of research.

In the case of CWC's DEED Grant Project, the data analysis process moved from raw focus group audio recordings to a plan for action using the following steps. The researcher:

- Transcribed audio recordings,
- Organized or coded all focus groups' responses into groups by question in a report,
- Coded all responses by program area in another report,
- Developed other opportunities to change/improve program areas based on the data and add them to the report,
- Shared the reports with others in the organization, got feedback and more ideas,
- Helped prioritize opportunities to change the organization,
- Made plans and changes with the agreement and help of others in the organization.

One of the first steps in qualitative data analysis, therefore, is creating a data record that researchers can process, which often involves listening to an audio recording of a focus group or interview and transcribing the spoken word into a text document (Bailey, 2008).

In our case, the person who analyzed the data transcribed the audio recordings, keeping track of patterns they noticed, things that seemed really important, or further questions the recordings stimulated.

The transcription process involved the researcher listening to the focus group and interview recordings and writing down what people said. This process may seem simple, but there are actually many decisions to be made on what exactly to include in the written data record (Bailey, 2008).

For the focus groups with volunteers, the researcher wrote down what they understood to be the meaning of what the volunteers shared, and transcribed exactly what people shared, directly quoting participants when they shared something important or in a way that the researcher thought could be an example in a report.

This decision to only selectively directly transcribe the volunteer statements was a strategy to increase the efficiency of the analysis process. Since direct transcription can be a lengthy process and the researcher had already had many interactions with program volunteers, they felt confident they could save time and understand the volunteer's ideas and perspectives by capturing the meaning behind most statements.

When transcribing the focus groups with clients and potential clients, however, the researcher quoted the participants directly, to capture not just what the participants said, but how they said it (Bailey, 2008).

Having this detailed record allowed the researcher to refer back to those statements again and challenge their initial attempts at decoding what respondents shared. Taking the time to re-evaluate what the research participants shared can help uncover new or different layers of meaning that can help better understand them and produce a more credible research product (Richards, 2009, p. 85-86).

After transcribing the audio files into a text document, the researcher then organized the responses into groups by question. This organization of the data was a type of "coding," or grouping chunks of data into categories to help make sense of it all (Flick, 2009; Richards, 2011). During this process, the researcher organized and summarized similar and different responses to each question and made notes of what they noticed, including what trends emerged and what were unique, noteworthy responses (Richards, 2011).

This helped the researcher understand all of the responses to the focus group questions across all of the groups, which provided valuable perspective and helped create a document that could be shared with those in the broader organization.

Lastly, organizing the data by question was another action that helped the researcher become more familiar with the data and better understand how the data should be organized and presented to be more helpful for organizational decision-making. Using insights from organizing the data by question, they next organized the responses and ideas that were suggested according to program area or improvement category. These program areas included client recruitment, the tune-up service itself, and the volunteer training process.

Collecting all of the statements that pertained to each program area helped provide other insights on how to change or improve the program in order to discuss how the insights could be used to make specific program improvements.

These two documents of coded or organized statements formed the basis of two reports that were presented back to volunteers, and shared with other researchers and members of the organization. During meetings with core members of the organization, the responses to focus group questions and opportunities for program changes by program area were prioritized and this small team made decisions about what to implement.

3. Present the Data in a Helpful Way

There are many ways to present social data, and whichever is chosen should help summarize, explain, feature examples from the data, and be helpful. Data and the analysis process should be described and presented in a way that aligns with the data and is helpful to members of the organization (Richards, 2011).

This could take many forms including a report close to the raw data, such as a written document with all of the responses organized by question. One step away from the raw data, a written document where all of the ideas and statements collected from research respondents are organized by program area to which they are referring could be helpful as well.

Another strategy for presenting research and analysis to other team members is to develop a Powerpoint presentation of the best examples



of typical or unique responses to each question, or program area. Researchers may also collect or develop ideas for program improvements and create a report, presentation, or a bullet-point list of possible changes.

Whichever way a researcher chooses to present the data, it should ultimately help an organization better understand what the research respondents said and suggested.

Reports and Powerpoint presentations can be tools to spark conversation and strategy meetings among members of an organization. Reports can also be valuable for helping develop marketing strategies and tools based on what respondents said.

Turning Insights Into Marketing Strategies with CBSM Tools



Community-Based Social Marketing uses commercial marketing strategies and tools to foster behavior change (Bryant et. al. 2000; McKenzie-Mohr, 2011; Monaghan, n.d.). There is a suite of social marketing terms like those discussed by Monaghan (n.d.) that can help to develop a Community-Based Social Marketing campaign, which include the marketing mix described below.

1. The “4 P’s” Marketing Mix

- Product- the new behavior or benefit of the behavior,
- Price- the costs (monetary, temporal, social, emotional etc.) the target audience exchanges for the product,
- Place- where the desired behavior is performed, or sometimes where the promotion of the behavior happens, and
- Promotion- the marketing and other activities that encourage and facilitate the exchange/performance of the desired, new behavior.

Being aware of other factors that influence the behavior of an organization’s target audience is also helpful, such as social forces and how visible the organization can be.

2. Social Norms

Peer pressure and not wanting to seem like the ‘odd one out’ can be powerful forces impacting people’s actions (Ajzen and Fishbein, 1980; Nasseur, Wang, and Dayrell, 2009). Social norms are powerful influencers of human behavior, especially when it comes to things like pro-environmental behaviors (McKenzie-Mohr, 2011), home landscaping practices (Dorsey, 2010; Robbins and Sharpe, 2003), and health behaviors (Wakefield, Loken, and Hornik, 2010).

After focus groups were conducted, we strategized to conduct a “blitz,” later called a “tune-upalooza,” scheduling several tune-ups in one specific geographic area at a time.

This focused volunteer efforts in one area of town at a time, intended to normalize the CWC and create interest among neighbors to become clients. This focus also provided more opportunities for volunteers to

experience a sense of camaraderie and community—increasing some of the benefits many have appreciated about volunteering with CWC.

3. Identity

People need to know what an organization is and what they do in order to participate in a program. Building an identifiable presence and way for people to easily and intuitively understand what an organization is, what they do, and where and with whom they operate can be the necessary step to helping more people with your program. A strong identity and brand for your organization can increase the visibility, desirability, and trust of your program (Ritchie, Swami, and Weinberg, 2006).

For marketing materials development we worked with a professional marketing and branding agency to develop several designs of a few different types of marketing materials. We had several ideas for different materials and what they might say, which we had developed through our research and during our focus group analysis. It was excellent to also have professional help translating our research findings to a tangible brand with identifiable colors, a new logo, and icons, exemplified below:

α. Marketing Material Examples



Tabling event poster



Yard sign



Coupon handout

Conclusions

Non-profits that serve people in their community, including other community weatherization programs, can increase their impact by using social science action research like CBSM.

Planning, conducting, and analyzing social research can yield valuable, practical insights that yield to meaningful and effective program changes and marketing efforts.

Making an effort to listen to the people whom a program serves can help that program stay relevant and increase the impact of the services they provide.

We hope non-profit organizations and other programs can use the best practices detailed in this manual to take research step-by-step to help their programs succeed.

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Resources

Better Evaluation-- Sharing Information to Improve Evaluation: <http://www.betterevaluation.org>

Know How NonProfit Wiki on Data Analysis for NonProfit Organizations: <https://knowhownonprofit.org/how-to/how-to-analyse-quantitative-data-for-evaluation>

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