California Housing Partnership Corporation
*California's Experts on Affordable Housing Finance, Advocacy & Policy*

# Barriers to Weatherizing California

An examination of the Weatherization Assistance Program's Challenges to Serving Low Income Multifamily Rental Housing

Harrison Hotel, Oakland, CA

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## Executive Summary

This study examines various approaches undertaken by the California Department of Community Services and Development (CSD) to make energy efficiency improvements to low income rental multifamily dwellings (MFDs) under the United States Department of Energy (DOE) Weatherization Assistance Program (WAP) and investigates barriers encountered by property representatives during implementation of the program.

WAP was created in 1976 to help low income renters and homeowners reduce energy consumption and costs by making their homes more energy efficient. The passage of the American Recovery and Reinvestment Act (ARRA) on February 17, 2009 significantly increased CSD's WAP budget from $6,265,676 in Program Year 2008 to $185,811,061 in Program Year 2009,[1] with a mandate that CSD use these funds to complete projects by September 31, 2012 and return the residual amount to the federal government.

On July 1, 2010, CSD issued guidance to Energy Service Providers (ESPs) outlining policies and procedures for weatherizing multifamily affordable housing that stated:

> *"Over the past month, CSD has issued a series of communications encouraging DOE Energy Service Providers to consider the multitude of benefits that can be achieved by targeting weatherization services to California's large public housing market and in particular DOE's select, income-qualified multi-family housing lists."*[2]

In June 2011, CSD contracted with the Association of California and Community Energy Services (ACCES) to provide outreach and technical assistance in implementing weatherization in multifamily dwellings. In September 2011, ACCES contracted with the California Housing Partnership Corporation (CHPC) to provide outreach to multifamily property representatives in areas served by ESPs working with ACCES.

In the second phase of its contract with ACCES, CHPC conducted a study which: a) explored approaches used to implement a MFD WAP process in the ACCES Service Area under DOE ARRA WAP, b) investigated barriers encountered during implementation, and c) developed recommendations for future CSD MFD weatherization policies. This report details the findings of the study.

The study is based on interviews with 33 representatives of properties in the ACCES service area that participated in DOE ARRA WAP. As directed by ACCES, interviews with ESPs and CSD were not part of the scope of this study; the findings of this study are informed primarily by interviews with property representatives and with ACCES to

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[1] PY 2008 contract term was July 1, 2008 - June 30, 2009; due to ARRA WAP, PY 2009 contract term was July 1, 2009 - March 31, 2012, which was subsequently extended to September 31, 2012.

[2] CSD Guidance DOE ARRA WAP No. 13

obtain the perspective of the ESPs. Furthermore, the scope of the study was limited to properties in the area served by ACCES.

**Findings** from the property representative interviews are summarized below:

- Fourteen (14) representatives (43 percent, 50 properties) had properties that received some form of weatherization services.

- Five (5) representatives (15 percent, 23 properties) could not receive services, as they claimed they were not contacted by the ESPs.

- Six (6) representatives (18 percent, 22 properties) did not receive services, as they stated they did not respond to outreach from ESPs.

- Three (3) representatives (9 percent, 20 properties) said they were denied service because they were told the ESPs had insufficient funds.

- Five (5) representatives (15 percent, 26 properties) said they chose to withdraw participation from WAP. There were three primary reasons why surveyed property representatives said they chose to withdraw participation:

    - Representatives felt the administrative burden required to access the program outweighed the services they would have received.
    - Representatives were concerned WAP services could adversely affect their properties' financing, specifically their ability to leverage the maximum amount of Low Income Housing Tax Credits to pay for a rehabilitation project.
    - Representatives believed the ESP service contracts did not provide adequate protection against property damage or business interruption incurred in the process of weatherization.

- Of the 14 representatives whose properties received WAP services, seven (7) complained of encountering the following barriers in implementation of the program:

    - The process for documenting eligibility required by the program was burdensome and time consuming.
    - The services provided were less and/or different than what was expected. Specifically, properties did not receive "whole-building" energy audits and efficiency measures.
    - There was a lack of clear communication between the ESPs and property representatives. Specifically, representatives felt that ESPs failed to inform them clearly of the services to be provided, the timing and manner of

installation and, most problematically, failed to provide an inventory of the weatherization measures that were ultimately installed.

Although DOE ARRA WAP funds were available for a relatively short period of time, they have given California an opportunity to assess and further develop the State's approach to weatherizing low income MFDs and to advance future weatherization work in the State. Accordingly, this study makes the following **recommendations** to ACCES and CSD[3] for making improvements to the state's WAP program going forward:

1. *Streamline program policies and procedures:*
   CSD and ESPs should
   a. streamline intake and eligibility verification processes
   b. make good faith efforts to coordinate inspections with property representatives,
   c. establish clear communication protocols for ESPs and property owners, and
   d. provide property representatives with written copies of all assessments, lists of measures to be provided by unit and an implementation timeline to participants.

2. *Add customary provisions to service contracts that give owners with reasonable protection against damage to the property or interruption of the rental business arising from the work of the ESPs.*

3. *Streamline measure assessments:*
   CSD and ESPs should re-evaluate measure assessment processes with a high administrative burden and either adopt new assessment procedures with lower burdens or, if that is not possible, waive the assessment requirement for some measures. This requires further collaboration with CSD, ESPs, and property representatives to a) establish guidelines around what constitutes acceptable administrative burden, b) develop alternative assessments.

4. *Benchmark and analyze energy savings:*
   CSD should collaborate with utility companies, property representatives, and other stakeholders to establish procedures for benchmarking, collecting, and monitoring energy savings data from weatherized multifamily buildings.

5. *Re-evaluate audit tools:*
   CSD should re-evaluate the auditing tool used for whole-building multifamily weatherization and work with the CPUC and utility companies to ensure that their respective tools and protocols are consistent.

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[3] CHPC acknowledges that CSD is limited in many respects in the changes that can be made to the program without DOE direction and/or permission.

6. *Develop and implement pre-assessment procedures:*
   CSD should work with the CPUC and utility companies to develop a pre-assessment approach for use by ESPs to evaluate the feasibility of MFD weatherization projects at an early stage (i.e., prior to commencement of an energy audit) so that ESPs and property representatives can better evaluate the potential benefits of the program against the administrative burden of participation.

## Glossary

ACCES - Association of California Community and Energy Services

ARRA - American Recovery and Reinvestment Act

CEC - California Energy Commission

CHPC - California Housing Partnership Corporation

CPUC - California Public Utilities Commission

CSD - Department of Community Services and Development

DOE - Department of Energy

ESP - Energy Service Provider

MFD- Multi-Unit Dwellings

REM- Resource Efficiency Manager (building energy performance modeling software)

TREAT - Targeted Retrofit Energy Analysis Tool (building energy performance modeling software)

WAP - Weatherization Assistance Program

Property Representative(s) - Authorized representative of a property (typically an owner or property manager) who is responsible for making executive decisions regarding the property and its participation in WAP

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## Acknowledgements

The primary researcher for CHPC on this report was Namrata Kapoor. Her work was overseen by Sustainable Housing Policy Manager Ross Nakasone. CHPC Sustainable Housing Program Manager Tara Siegel and consultant Jerry Jai developed the final draft of the document, which was reviewed and approved by CHPC President & CEO Matt Schwartz.

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## Introduction

Administered by the United States Department of Energy (DOE), the Weatherization assistance program (WAP) was created by Congress in 1976 to help low income renters and homeowners reduce energy consumption and costs by making their homes more energy efficient through the installation of energy conservation measures.

DOE uses an allocation formula to calculate the annual WAP funds granted to states based on the amount of funding Congress appropriates to the program in a given year. The passage of the American Recovery and Reinvestment Act (ARRA) on February 17, 2009 significantly increased California's WAP budget from $6,265,676 in Program Year 2008 to $185,811,061 in Program Year 2009,[4] with a mandate that CSD use these funds to complete projects by September 31, 2012 and return the residual amount to the federal government.

On July 1, 2010, CSD issued guidance to Energy Service Providers (ESPs) outlining policies and procedures for weatherizing multifamily affordable housing, which stated:

> *"Over the past month, CSD has issued a series of communications encouraging DOE Energy Service Providers to consider the multitude of benefits that can be achieved by targeting weatherization services to California's large public housing market and in particular DOE's select, income-qualified multi-family housing lists."*[5]

With support from DOE, the United States Department of Housing and Urban Development (HUD), nonprofit housing organizations including CHPC, and stakeholders in the energy efficiency sector, CSD began to develop and experiment new approaches to weatherize low income MFDs.

In June 2011, CSD contracted with the Association of California Community and Energy Services (ACCES) to provide outreach and technical assistance in implementing multifamily weatherization. In September 2011, ACCES contracted with the California Housing Partnership Corporation (CHPC) to provide outreach to representatives of multifamily properties on the DOE/HUD approved list of prequalified multifamily properties with at least 66% eligible households[6] in areas served by ESPs working with ACCES, namely: Maravilla Foundation, Pacific Asian Consortium in Employment (PACE),

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[4] PY 2008 contract term was July 1, 2008 - June 30, 2009; due to ARRA WAP, PY 2009 contract term was July 1, 2009 - March 31, 2012, which was subsequently extended to September 31, 2012.

[5] CSD Guidance DOE ARRA WAP No. 13

[6] HUD established a process by which additional properties could be added to the list of prequalified properties and invited CHPC to encourage representatives of low income properties meeting the criteria but not already on the list to apply. HUD was able to add dozens of additional properties to the eligible list in this way.

Community Action Partnership Orange County (CAPOC), Community Action Partnership San Bernardino (CAPSB), Community Action Partnership Riverside (CAPR), Sacred Heart, Central Coast Energy Services (CCES), and Los Angeles Department of Water and Power (LADWP). A map of the areas served by ACCES ESPs (henceforth referred to as the "ACCES Service Area"), is shown in **Exhibit 1**.

Between October 2011 and March 2012, CHPC contacted representatives of 459 properties. Of those, representatives for 160 properties expressed interest in receiving WAP services and were referred to ACCES by CHPC for participation in the program. The number of units weatherized by ESPs working with ACCES and the amount of funding spent in the ACCES Service Area through April 30, 2012 is shown in **Exhibit 2**.

As of September 11, 2012,[7] a total expenditure of $166,037,156 and 59,066 weatherized units have been reported in DOE ARRA WAP Program Year 2009, including both single-family and multifamily dwellings throughout California.

In the second phase of its contract with ACCES, CHPC conducted a study which: a) explored approaches used to implement a MFD WAP process in the ACCES Service Area under DOE ARRA WAP, b) investigated barriers encountered during implementation, and 3) developed recommendations for future CSD MFD weatherization policies. This report details the findings of the study.

## Method and Scope

This study is based on telephone interviews with 33 property representatives referred to ACCES by CHPC to participate in the MFDWAP process. Our records show that these individuals represent 141 of the 160 properties that were referred by CHPC (**Exhibit 3**).

Although this study began with the intention of evaluating property owners' experiences with the new TREAT based MFD whole-building weatherization, the number of properties that were ultimately weatherized using this approach was too small to draw accurate conclusions. Therefore, the study shifted its focus to include implementation barriers in the individual unit/prescriptive approach that was used to weatherize the majority of multifamily units in the survey area.

The findings of this study are informed primarily by interviews with property representatives in the five counties specified by ACCES. As directed by ACCES, interviews with ESPs was not part of the scope of this study, although ACCES made itself available to provide ESP perspectives.

[7] DOE ARRA Production Progress Update thru August 31, 2012

Findings from the interviews were reviewed by a focus group comprised of property representatives, representatives from ESPs, CSD, and ACCES. The focus group highlighted problems faced by ESPs in implementing a MFD WAP process. Recommendations developed in part by the focus group are discussed at the conclusion of this report.

It is important to note that this study only investigates the *implementation* of the DOE ARRA WAP program for rental MFDs. The data necessary to evaluate the *impact* of weatherization vis-à-vis energy savings, cost-savings, or other long-term benefits exceeds the scope of this study.

## Evolution of the WAP Protocols

In response to increased funding levels resulting from the infusion of DOE ARRA WAP dollars, CSD implemented program changes in PY 2009, including guidance encouraging "whole-building" weatherization of low income multifamily rental housing.

*Individual Unit Approach/Prescriptive Approach*

Many prior weatherization policies and protocols were based on a history of primarily weatherizing single family homes, mobile homes, and individual units in small MFD buildings (fewer than 25 units). This approach relied on documentation and verification of participant eligibility on a unit-by-unit basis, which typically involved a door-to-door effort to perform intake and collect source documentation from residents, often bypassing the owner's representative. Most weatherization measures under this "individual unit approach" were generated through site-specific audits/assessments of cost-effectiveness or by assessing the cost-effectiveness of measures based on typical building and climate characteristics. This latter approach is used to generate so-called prescriptive lists of measures. There are challenges to using a "prescriptive measure list" in the context of multifamily "whole building" strategies, because the prescriptive lists were for the most part generated from the analysis of single family structures. These policies and procedures proved problematic for serving larger multifamily rental properties in a comprehensive manner as has been documented by the Multifamily Subcommittee of the Environmental Protection Agency-sponsored California Home Energy Retrofit Coordinating Committee (MF HERCC) in its April 2011 report, "Improving California's Multifamily Buildings: Opportunities and Recommendations for Green Retrofit & Rehab Programs."[8]

[8] http://www.builditgreen.org/_files/Admin/HERCC/MF_HERCC_report_10152010.pdf

*Streamlined Intake/Building Level Verification*

As documented by MF HERCC, door-to-door verification of participants in large multifamily housing is not only onerous, but in some cases, duplicative of efforts already undertaken to substantiate resident eligibility for housing programs (for example, in annual tenant income certifications in Low Income Housing Tax Credit or HUD-subsidized housing). In response, DOE and HUD collaborated to streamline the process for qualifying low-income housing for WAP participation. On January 25, 2010, DOE implemented rule 71-CFR-3847 which established conditions for qualifying certain multifamily buildings for participation in WAP based on verification by HUD, and predicated on inclusion of the building on a regularly-updated eligibility list published by DOE (the "HUD-DOE List").[9] CSD issued policy guidance regarding 71-CFR-3847 on July 1, 2010 in CSD Guidance DOE ARRA WAP No. 13. To facilitate service delivery, CSD directed ESPs to use the master list of eligible buildings (buildings with 66 percent of units with household incomes at or below 200 percent of the federal poverty level) developed by HUD using HUD income records and approved and recommended by DOE for use by WAP providers.

*Whole-Building Approach*

As noted by the MF HERCC, the prescriptive approach towards weatherization measures has also proved to be problematic in many instances since it was developed primarily for single family homes, mobile homes, and small MFDs, and lacks technical relevance to the unique conditions and systems present in larger MFDs. In response, CSD collaborated with technical consultants, non-profits, and ESPs to develop the Multifamily Energy Audit Protocol, which was approved by DOE and formally issued on April 18, 2011.

CSD's Multifamily Energy Audit Protocol allowed MFD buildings to be assessed as a holistic, interactive system rather than as individual, unrelated units. The whole-building approach enables ESPs to install weatherization measures included in the prescriptive approach (re-lamping, hot water flow restrictors), as well as enabling weatherization of common areas (hallways and corridors, lobbies, community rooms) and central systems (heating, cooling, and hot water plants). In addition, the whole-building approach is based on comprehensive, technically rigorous, site-specific energy audits, allowing CSD and ESPs to verify the cost-effectiveness and efficacy of proposed/installed weatherization measures.

The Targeted Retrofit Energy Analysis Tool (TREAT) was selected by CSD and DOE as the audit tool for use in large multifamily buildings, whereas small MFDs were to be assessed using the Resource Efficiency Manager (REM/Design) system.

[9] http://www1.eere.energy.gov/wip/multifamily_guidance.html

Differences between the whole-building approach and the individual unit/prescriptive approach are outlined in **Exhibit 4**; they are crucial to understanding the barriers to implementing WAP in multifamily housing.

## Challenges in Implementation of the Whole-building Approach

To implement this new whole-building approach, DOE and CSD guidance encouraged ESPs, consultants, and contractors to retool their approaches and technologies while continuing to provide standard weatherization services.[10] The new approach required the services of energy auditors familiar with TREAT and/or REM/Design, and with the experience and capacity to assess a large potential pipeline of MFDs inflated by the infusion of ARRA WAP funding and the creation of the DOE/HUD list of prequalified properties. In addition, many ESPs had little or no experience with energy audits on multifamily rental housing. These factors resulted in unexpected delays to providing services to MFDs under ARRA WAP.

As Arleen Novotney, Administrator at ACCES, explains, TREAT audits could not begin until ESPs fulfilled the bidding, contractual, and documentation requirements for selecting and hiring qualified energy auditors, a process that took some ESPs over two (2) months. One of the requirements that created a barrier was collecting 12 months of utility bills from residents. Without this data, a whole-building approach could not be completed.

In addition, the pool of qualified energy audit consultants was limited, and new consultants faced a steep learning curve with this approach. As a result, TREAT audits – which were anticipated to take weeks to complete – typically took longer, and in some cases took as much as four (4) months from start to finish according to information provided by ACCES. Not only did this delay production, it also increased cost in these projects. ACCES also indicated that ESPs were ending up with fewer eligible measures using TREAT than using REM/Design or a prescriptive approach.

According to ACCES and CSD, these challenges, combined with the approaching deadline to expend ARRA funds, drove many ESPs to revert to weatherizing multifamily buildings through the individual unit/prescriptive approach. Unfortunately, this disqualified measures in common areas and centralized heating/cooling systems, limiting the impact of WAP in large multifamily housing.

As shown in **Exhibit 5**, only six (6) buildings underwent TREAT audits in areas served by ACCES. Of those, only three (3) ultimately received whole-building weatherization measures according to CSD records.

[10] Please see CSD DOE WAP ARRA Guidance No. 13, EP 11-06, and EP 11-07A

It is important to note that the Cities of Oakland and San Francisco, which proposed to focus on multifamily rental buildings from the outset of their participation in WAP, were better prepared to handle the whole building approach. Oakland and San Francisco weatherized 13 and 25 properties, respectively, using the whole-building approach.

## Program Barriers

The results of our surveys with property representatives are diagrammed in **Exhibits 6 and 7**. Out of the 33 property representatives interviewed for the survey:

- Fourteen (14) representatives (43 percent, 50 properties) had properties that received some form of weatherization services.

- Five (5) representatives (15 percent, 23 properties) could not receive services, as they were not contacted by the ESPs.

- Six (6) representatives (18 percent, 22 properties) did not receive services, as they did not respond to outreach from ESPs.

- Three (3) representatives (9 percent, 20 properties) were denied service because ESPs had insufficient funds.

- Five (5) representatives (15 percent, 26 properties) chose to withdraw participation from WAP. There were three primary reasons why surveyed property representatives chose to withdraw participation:
  - Representatives felt the administrative burden required to access the program outweighed the services they would have received.
  - Representatives were concerned WAP services could adversely affect their properties' financing, specifically, impacts on Low Income Housing Tax Credits.
  - Property representatives required greater protection against property damage incurred in the process of weatherization.

- Of the 14 representatives whose properties received WAP services, seven (7) complained of encountering the following barriers in implementation of the program:
  - The process for documenting eligibility required by program was onerous and time consuming.
  - The services provided were less and/or different than what was expected. Specifically, properties did not receive "whole-building" energy audits and efficiency measures.

- There was a lack of clear communication between the ESPs and property representatives. Specifically, representatives felt that ESPs failed to inform them clearly of the services to be provided, the timing and manner of installation and, most problematically, failed to provide an inventory of the weatherization measures that were ultimately installed.

A summary of the barriers faced by property representatives is summarized in **Exhibit 8**, and discussed in further detail below.

**A. Barriers in Communication or Outreach**

Fifteen (15) percent of the property representatives interviewed claimed they did not receive services during the production period because they were not contacted by their local ESPs. A similar percentage of property representatives, 18 percent, said they did not respond to outreach by the ESPs. As a result, weatherization work at approximately 45 properties was not initiated because ESPs and property representatives failed to connect. This is indicative of an un-served demand for weatherization services in California, which is a cause for concern if unused, time-limited ARRA WAP funds are required to be returned to the federal government per federal mandate.

Nine (9) percent of the properties in this study said they were denied service in Riverside because the ESP had insufficient weatherization funds. Two property management companies operating in Riverside - Hyder Company and RC Investment Group - invested the effort to add some of their properties to the HUD-DOE eligibility list with the expectation of receiving weatherization services. Unfortunately, they claimed they were not aware that the ESP had insufficient funds. Ultimately, their properties were not audited or weatherized, despite having gone through the eligibility verification process.

**B. Properties withdrew from the program**

Property representatives that withdrew from participation in WAP highlighted several challenges they encountered with program design:

1. *Administrative burden outweighs the benefits of participation:*
   For many owners and operators of affordable housing, the value of the services available under WAP could not justify the administrative time and effort needed to access the program.

   Because property owners do not typically pay the utility bills for individually metered rental units, monetary benefits from a reduction in energy consumption do not accrue to those owners. Similarly, operators of many HUD-subsidized properties are required to return utility savings to the federal government and are not entitled to use energy cost savings at their discretion. Although services under WAP are

provided at no cost, the program requires significant investment of time and effort on the part of property representatives and sometimes their tenants.

Weatherization programs have the potential to provide improvements that offer both utility savings that benefit tenants, as well as long-term operating/replacement cost benefits incentivizing property owners (for example, window replacements). However, WAP program requirements (such as leveraging restrictions set by DOE) made it difficult for properties and ESP's to find a way to access some measures and accomplish deep energy retrofits.

In its initial stages, ARRA WAP MFD received an enthusiastic response from property representatives who hoped to receive comprehensive energy assessments and whole-building weatherization measures for their tenants and common areas where there would be benefits to tenants as well as to the property. However, in cases where preliminary assessments revealed that properties would be ineligible for specific desired services, some representatives decided to withdraw participation from the program. Those owners concluded that the administrative time and effort outweighed the limited potential improvements their properties could receive. It is worth noting that many of the properties seeking window replacement under the WAP were advised that eligible improvements must meet DOE's cost-effectiveness test, and were disappointed when the desired improvements did not pass the test.

For example, HDSI Management, Inc. (http://www.hdsimanagement.com) withdrew six (6) properties from participation in WAP when they realized that window replacements would likely be ineligible under the program. Similarly, three (3) properties belonging to ManSerMar Inc. (http://www.mansermar.com) rejected services as they did not anticipate receiving services worth the administrative time and effort required of their staff. It has been difficult for ESPs to encourage participation from such value conscious multifamily property owners/managers, and as a result, the low income tenants at these properties have not received weatherization services.

2. *Compatibility with Low Income Housing Tax Credits (LIHTCs):*
   A DOE policy and regulatory barrier - representatives of several properties with existing or anticipated LIHTC financing declined participation in WAP because they did not want the program to affect the eligible basis of their tax credits. The Internal Revenue Service (IRS) currently considers the receipt of WAP services to be a federal grant. Tax regulations stipulate that LIHTC property owners must reduce their developments' eligible tax basis by the amount of federal grants used in those developments. Unless there was sufficient excess eligible basis at the time of cost certification, the receipt of WAP services could result in a reduction in LIHTCs and consequently overall financing available to the project. Tax credit properties that completed the initial tax compliance period had less difficulty accessing the program.

3. *Service Agreements lacked adequate protections regarding quality of work and impact on operations:*

Some property representatives interviewed expressed concerns that WAP service agreements did not contain adequate assurances regarding the quality of work, safeguards against damage to assets incurred during the process of weatherization, or provisions for recourse should issues arise that required relocating tenants and leaving units vacant resulting in a loss of rental income and possibly violating regulatory agreements with public agencies.

One property representative cited the Service Agreement's insurance requirements:

> *"The Agency (ESPs) shall ensure that the Agency is insured and shall be responsible for damage to unit premises, furnishings, and/or resident(s) that is caused by Weatherization measures, or other energy measures."*

This language fails to describe necessary specifics such as policy types, coverage limits, and exclusions.

Furthermore, the service agreement contained language indemnifying ESPs, while leaving limited recourse to property owners. Mid-Peninsula Housing Corporation (MidPen) (http://www.midpen-housing.org) cited negative experiences working with utility company funded programs in the past, and wanted to ensure that the provision of WAP services did not inadvertently jeopardize the condition of their properties or the safety or comfort of their tenants. Although MidPen was interested in WAP services, and their properties met WAP eligibility criteria, they opted to withdraw participation from WAP because the program service agreement lacked adequate protections and because ESPs failed to respond to their concerns.

Southern California Presbyterian Homes (http://www.thebegroup.org) also withdrew fifteen properties from participation because they had heard reports of alleged property damage incurred during the course of weatherization projects. A robust service agreement could have helped to address such concerns, and encouraged property representatives to participate in the program.

It should be noted that some ESPs were able to modify service agreements to address individual property concerns. For example, LINC Housing (http://www.linchousing.org), with the help of a representative from ACCES, worked with their ESP to re-draft service agreements to their satisfaction. Representatives of LINC Housing noted that a standard service agreement with more clearly enumerated protections for property owners would have saved them the time and effort needed to negotiate contract amendments on an individual basis.

***C. Received services, but have reservations about the program and/or outcome:***

While property representatives were pleased to receive weatherization services, half of those who did receive services expressed frustration with the process and/or dissatisfaction with the final outcome. Their comments are discussed below:

1. *Onerous and time consuming documentation process:*
   Most property representatives said that the eligibility documentation requirements of the program were onerous and time consuming and reported that some ESPs agreed with them.

   Traditionally, WAP relied on documentation and verification of participant eligibility on a unit-by-unit basis, which typically involved a door-to-door effort to perform intake and collect source documentation. Typically, an ESP representative, with or without the cooperation of a property representative, would go door-to-door to verify each individual household's eligibility by collecting one month's proof of income, the household's most recent utility bill to determine energy burden, and demographic information (age, disability status, language, ethnicity). Any non-earning resident over the age of 18 in the household was required to complete a "Declaration of No Income" form that had to be notarized.

   As described in the section "Evolution of the WAP Protocols," above, DOE and HUD collaborated to streamline the process for qualifying low-income multifamily housing by implementing 71-CFR-3847 in January 2010, and CSD issued policy guidance regarding the rule on July 1, 2010 in CSD Guidance DOE ARRA WAP No. 13.

   According to the rule, properties appearing on the HUD-DOE eligibility list were to be deemed as meeting the minimum eligibility criteria for WAP without need for further verification. Buildings that did not appear on the HUD-DOE list, but which met program eligibility criteria, could be added via a "self-certification" process, in which property representatives submitted building-level data to HUD for certification that 66 percent of residents (50 percent for 2-4 unit buildings) met the DOE WAP income eligibility threshold (200 percent of the federal poverty guideline). This process reduced the time and effort required to establish income eligibility for multifamily properties.

   Several property representatives took the effort to undergo the self-certification process, eliminating the need for door-to-door income verification. To their disappointment, when ESPs switched to an individual unit assessment approach due to barriers in whole-building WAP implementation and leveraged LIHEAP funding, the documentation process reverted to the individual unit eligibility requirement, and property representatives and ESPs were required to go door-to-door to verify income eligibility on a unit-by-unit basis. LINC Housing faced this problem for several of their properties. In some cases, ESPs elected to include weatherization

measures funded from the Department of Health and Human Services (DHHS) program, which is subject to a different set of federal regulations. The DHHS program funds are not subject to the same cost-effectiveness requirements as DOE and were brought into play in come cases to enable the funding of measures that would be excluded from the DOE program, such as windows, which would benefit the property. The need for additional information was the result of DHHS rules and not CSD's administrative discretion.

2. *Unmet expectations:*
   Property representatives expressed dissatisfaction with final WAP results, as they did not receive whole-building energy audits or efficiency measures.

   Property representatives at CSI Support and Development Services (CSI) (http://www.csi.coop) applied to WAP in April 2011 with the expectation of receiving typical whole-building energy efficiency measures such as boilers, window replacements, and roof improvements. They made the effort to have their properties added to the HUD-DOE eligibility list. Unfortunately, after approaching their county ESP in May/June 2011, most of the properties did not receive TREAT energy audits and they eventually had to settle for the individual unit assessments and prescriptive weatherization measures.

   Despite the low incentive for some property representatives to participate in the program (due to the various barriers discussed in this report), interviews revealed that representatives were nonetheless eager to participate simply for the value of receiving comprehensive energy audits, which could inform broader and longer-term efforts to increase energy efficiency in properties. TREAT energy audits were a widely advertised feature of the MFD WAP approach in the early stages of implementation, and property owners applied with the expectation of receiving whole-building audits, if not whole-building energy upgrades. Many property representatives were even prepared to invest financially in "buying down" measure costs that exceeded program funding limits in order to access services under the program.

   Eventually, only six (6) properties in ACCES territory were audited under TREAT and only three (3) eventually received whole building measures according to CSD records. Hence, many of the property owners who expected whole-building weatherization, but received services through an individual unit/prescriptive approach expressed dissatisfaction with the final outcome of the project as they felt they lost the value of the additional knowledge of performance based assessments that would have come with the TREAT audit.

3. *Lack of information on installed measures:*
   Most property representatives who received services said that they were unclear on

the final measures installed on site, in spite of repeated requests to the ESP for an inventory. As a representative at CSI explained, an inventory of installed measures is essential for property managers making attempts to upgrade unweatherized units to the same specification as those served under WAP, and for ongoing maintenance, repair and replacement. Equipment inventories are also necessary for property managers to prepare for Real Estate Assessment Center (REAC) inspections. Unfortunately, property representatives were unable to obtain the requested information from ESPs.

It is worth noting that the lack of data about the measures installed and energy saved through WAP has also been a barrier in conducting this study, and makes it difficult to evaluate the impact and efficacy of the program.

4. *Lack of communication:*
   Some representatives expressed frustration about the lack of regular communication between ESPs and property representatives. Not only did this create anxiety and inconvenience for property representatives, it also created friction between tenants and property representatives. For example, property representatives at CSI were not told why different energy efficiency measures were installed in seemingly similar units in the same property. CSI was therefore unable to satisfactorily answer tenant queries about the changes made to their units.

   While some communication barriers appeared to be procedural (i.e., due to the failure of ESPs or property representatives to follow up on correspondence), others appeared to be due to a lack of clear or timely policies, procedures, or guidance (for example, procedures for reporting multifamily projects in EARS, CSD's electronic activity reporting system). The lack of policies or procedures was likely due to the experimental nature of MFD implementation during DOE ARRA WAP, however, the lack of established policies and/or policies and procedures that changed during the course of implementation resulted in confusion, delays, and frustration.

5. *Repeated inspections:*
   While inspections are necessary to insure quality of service, some representatives expressed a desire for better coordination of various inspections in order to minimize interruption to tenants' everyday lives (for example, scheduling multiple inspections on the same day, rather than over the course of several days).

## Recommendations Moving Forward

Findings from the interviews were reviewed by a focus group comprised of property representatives, representatives from ESPs, CSD, and ACCES. The focus group highlighted problems faced by ESPs in implementing a MFD WAP process (**Exhibit 8**), and considered ways to address structural problems with the program. The recommendations and conclusions from this meeting are discussed below.

### A. Address Procedural Barriers

Recommendations for the procedural barriers identified by the study are outlined in **Exhibit 9** and discussed below.

1. *Streamline administrative processes and improve communication:*
   Improvements to administrative processes and communication could enhance participation in and reduce attrition from the program. Specifically:

   - Streamline intake and eligibility verification processes
     As previously mentioned, ESPs that leveraged LIHEAP with WAP funds were required to spend extensive amounts of time completing documentation requirements for the two programs. The burdensome and time consuming documentation processes delayed WAP implementation and led to potential program participants either refusing services or withdrawing participation. In order to prevent this problem, program documentation requirements should be clearly presented and coordinated between various energy and housing programs. Various state energy programs, including LIHEAP, should consider accepting the same building-level eligibility standards and processes created by HUD and DOE for WAP provided under 71-CFR-3847.

   - Streamline inspections
     ESPs should streamline inspection processes throughout the course of WAP projects. ESPs should work with property representatives and inspectors to coordinate the timing of various inspections so as to minimize disturbance to tenants. Inspection procedures and requirements should be clearly communicated to tenants and property representatives in advance so that they can plan for them adequately.

   - Establish communication protocols
     In order to maximize opportunities for participation, protocols for communication between ESPs and property representatives should be established. ESPs should respond to property representatives' requests for service within an established timeframe.

Furthermore, Federal Officials should streamline the process, and CSD and ESPs should more clearly establish and communicate program goals, procedures, timelines, and anticipated outcomes at the outset of weatherization projects in writing to property owners. ESPs and property representatives should have clear, mutual expectations for participation in WAP. For example, property representatives should understand the staff resources and capacity that participation in the program will require, a general outline of the steps involved in a MFD WAP project, the timeframe of specific processes (such as the energy audit process) as well as the project as a whole, and have reasonable expectations for the outcome of the project. This will enable ESPs and project representatives to adequately plan for WAP projects and enhance relations between providers and properties.

- Provide property representatives with project documentation
  ESPs should provide property representatives with written copies of all assessments performed, a written scope of work, and an inventory of installed measures upon completion of the weatherization project. Scope of work and inventory should provide accounting by unit (or note exceptions if the majority of units were similar).

  Many of the administrative burdens encountered by participants appear to have stemmed from the requirements of ARRA as imposed by DOE. Further development of program policies and procedures specific to MFDs and whole-building weatherization should streamline administrative processes and clarify normal procedures for written and verbal communication between ESPs, owner representatives and tenants. These policies and procedures should take into account the experiences and best practices of ESPs, property representatives, and technical consultants during DOE ARRA WAP implementation.

2. *Reframe service contracts to address concerns about property damage:*
   As explained in the "Program Barriers" section above, property representatives found that service contracts inadequately addressed potential concerns about the quality of installed work as well as resulting property damage and business interruption resulting from WAP services, and left little recourse for property representatives in the event of problems.

   Although some agencies successfully negotiated service contracts to address these concerns, the process was time consuming and burdensome and drove other large property owners to decline WAP services. We recommend that CSD and ESPs work with property representatives to develop a standard service agreement including customary provisions that give owners reasonable protection against damage to the property or interruption of the rental business

arising from the work of the ESPs. In addition, a mechanism should be established for multifamily property owners to select qualified weatherization contractors of their choosing. CSD should preselect a pool of organizations qualified to complete retrofits to MFD's pursuant to specifications set by CSD. Property owners could select from this pool based on an approved scope of work set by the administering organization, either CSD or the ESP. Alternatively, CSD could adopt model contracting specifications and guidelines for use by MFD properties in requesting proposals.

3. *Benchmark and analyze energy savings:*
   An advantage of whole-building energy audits is the ability to benchmark energy performance, and, consequently, analyze the long-term impact and efficacy of MFD WAP services. CSD should collaborate with ESPs, CPUC, utility companies, property representatives, and other stakeholders to establish procedures for collecting, benchmarking, and monitoring energy savings data from weatherized multifamily buildings. Data collection should minimize property representative and individual household involvement to the greatest extent possible in order to reduce administrative burden.[11]

   Such analysis will enable evaluation of program performance, aid in setting future program policy, and build support for future energy efficiency programs. The data can also help tenants and property representatives better understand their energy consumption patterns, resulting in increased energy savings.

**B. <u>Re-evaluate auditing tool:</u>**

1. *Streamline evaluation of measures based on real world cost-benefit analyses:*
   The focus group noted the high administrative cost of evaluating certain measures, namely refrigerators. Current protocol requires metering refrigerators for several hours during the audit process to determine whether energy consumption justifies replacement. ESPs suggest that refrigerators made before 1999 typically consume greater energy than newer units, and are also more likely to fail (either resulting in excess energy usage, or requiring replacement). The administrative cost involved in evaluating a refrigerator for replacement can easily exceed both the replacement cost of the unit, as well as the potential energy savings of the replacement unit. Therefore, policies should be put in place to streamline evaluation procedures for measures that carry a

[11] For example, TREAT-based energy audits require 12 months of utility records to establish a baseline. This requires access to individual households' utility records in individually metered properties. Frequently, residents do not maintain 12 months of utility records, requiring direct access to utility company records. Collaboration with CPUC and the utilities would not only reduce administrative burden on property representatives and individual households, but streamline the collection of data that may require direct utility company intervention anyway.

high administrative burden based on existing data and experience. CSD should re-evaluate measure assessment processes with a high administrative burden and either adopt new assessment procedures with lower burdens or, if that is not possible, waive the assessment requirement (for example, establish a policy to replace all refrigerators of a certain age or type because replacement is deemed cost-effective).

TREAT is a rigorous energy performance analysis tool capable of providing deep targets for energy savings. It enables users to holistically evaluate building retrofit opportunities including common area measures and central systems (such as heating and cooling systems). Most multifamily property representatives interviewed hoped to receive whole-building TREAT-based audits.

However the TREAT audit process is expensive and time consuming, and there is still a limited pool of consultants who have expertise in the TREAT energy performance modeling software. The relative dearth of qualified consultants (approximately 100 consultants in California) has been a barrier to the implementation of a TREAT-based protocol and has increased the cost of implementation.

The WAP program would benefit from establishing a hierarchy similar to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) guidelines for Level I and Level II assessments. Whatever auditing tool is adopted for California WAP, it should be consistent with the auditing requirements for the State. CSD should work with the CPUC, the CEC, DOE, ESPs and other stakeholders to re-evaluate whether TREAT is the preferred auditing tool by studying large multifamily rental buildings audited and weatherized using various energy modeling tools (for example, TREAT, REM/Design, and Energy Pro). The results from this examination should inform a decision on the most appropriate auditing software(s) that ESPs in all California programs should use for future MFD weatherization projects. The decision should take into account the breadth and depth of analysis capable under each tool, the scientific and engineering rigor of each tool, efficacy based on building energy performance pre- and post-weatherization (to the extent such data is available), as well as ease of implementation (availability of consultants qualified to use the tool, learning curve, etc.). CSD, CPUC, and the utilities should ensure that tools and protocols are consistent across their respective programs.

In addition, because of the simplicity, accessibility, and familiarity within the existing ESP network with REM/Design software, CSD should explore the possibility of expanding the REM-based audit protocol to include central systems and common areas as a means of providing a low cost/low barrier-to-entry

alternative for whole-building assessments and weatherization.

2. *Develop and implement pre-assessment procedures:*

   The focus group meeting revealed that two out of three TREAT audits in Riverside County did not yield weatherization measures that would have favorable savings to investment ratios, making it infeasible to continue with weatherization beyond the energy audit. CSD should analyze the data gathered through energy audits performed over the past two years, and develop pre-assessment procedures to help determine how likely MFD buildings applying to WAP are to benefit from a whole-building audit-driven approach. This would enable CSD, ESPs, and property representatives to better evaluate the potential benefits of the program against the administrative burden of participation. Done at an early stage (before an energy audit is commenced), this could save ESPs and property representatives time, effort, and monetary costs.

## Conclusion

Although DOE ARRA WAP funds were available for a relatively short period of time, they have given California an opportunity to develop the State's approach to weatherizing low income MFDs and to advance future weatherization work in the State. The lessons learned in this study provide valuable information that should help the state improve the structure and implementation of energy efficiency programs that can result in the weatherization of more low income MFDs in the future.

**EXHIBIT 1**

Map of service areas covered by ACCES

# EXHIBT 2

## Expenditure/Production in ACCES Service Area

**Table showing the amount of Money expended and Number of Units completed by ESPs working with ACCES**

| Agency | County Served | Contract Amount | Total Current Funding Reported Expended (thru 8/31/12) | Percent of Total Current Funding Reported Expended (thru 8/31/12) | Total Unit Goal thru July 2012 (2) | YTD Units Reported Complete | % to Total Goal |
|---|---|---|---|---|---|---|---|
| CAP of Orange Co. | Orange | 7,392,295 | 7,426,572 | 100% | 2221 | 2183 | 98% |
| CAP of Riverside Co. | Riverside | 8,806,100 | 8,806,100 | 100% | 1,644 | 1942 | 118% |
| CAP of San Bernardino Co. | San Bernardino | 7,727,752 | 7,893,216 | 102% | 1,946 | 2555 | 131% |
| Los Angeles Department of Water & Power | Los Angeles - Service Area A (West) | 8,782,715 | 8,787,811 | 100% | 2,544 | 3522 | 138% |
| Maravilla | Los Angeles - Service Areas B & D | 12,454,927 | 12,456,231 | 100% | 6,629 | 6847 | 103% |
| PACE | Los Angeles - Service Area C + Parts of Area A | 8,077,596 | 8,075,092 | 100% | 3,050 | 3661 | 120% |
| PACE - San Bernardino | San Bernardino | 552,881 | 542,743 | 98% | 400 | 393 | 98% |
| Santa Clara County - Sacred Heart | Santa Clara - Phase I Contract | 2,101,264 | 2,101,264 | 100% | 656 | 489 | 75% |
| **ACCES ESPs Total** | | **55,895,530** | **56,089,029** | **100%** | **19090** | **21592** | **88%** |
| **California Total** | | **166,779,126** | **166,037,156** | **100%** | **57,374** | **59,066** | **103.20%** |

Source : DOE ARRA PRODUCTION PROGRESS UPDATE Thru August 31, 2012

Notes:

(1) Total Awarded Funds YTD does not reflect $62,535 that was spent by former DOE ARRA energy service providers prior to the transfer of their contracts to new service providers in the following service areas: Alameda County - Area B, El Dorado / Alpine and Siskiyou County.

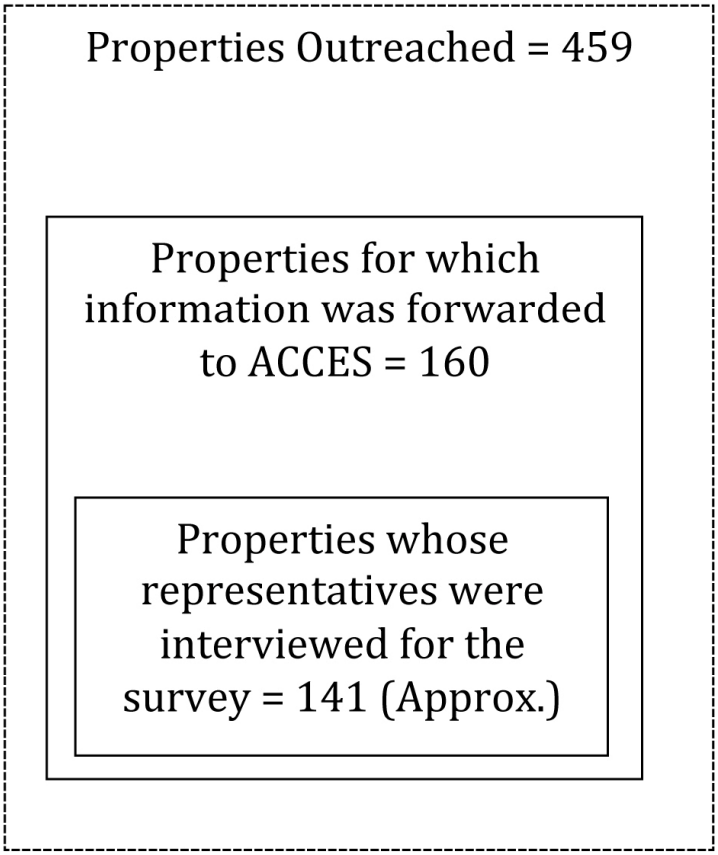
(2)Total Unit Goals have been updated as of July 2012 by all Subgrantees to reflect both year-to-date and projected unit production through the end of the contract.

(3) Contract Amount reflects a recent increase in ARRA funding due to reallocation.

(4) Contract Amount reflects a recent decrease in ARRA funding due to reallocation

**EXHIBIT 3**

Methods Diagram



# EXHIBIT 4

## Comparison of TREAT-based, REM-based, and Individual Unit/Prescriptive approaches to weatherization

| | TREAT | REM/Design | Unit By Unit Assessment |
|---|---|---|---|
| **Protocol** | - TREAT criteria and processes are described in the approved Multifamily Energy Audit Protocol dated April 18, 2011 or most recent version thereto. | - REM/Design criteria and processes are described in the approved Single-Family/Small Multi-Family Energy Audit Protocol dated February 15, 2012 or most recent version thereto. | |
| **Eligibility Criteria** | - A Multi Unit Dwelling(MUD) building is eligible for the TREAT program if 66% of its units are at or below 60% State Median Income (SMI) which roughly equates to 200% federal poverty level. Qualified buildings identified and recorded on a HUD-DOE list need not provide additional income documentation. | - A Single Family Residential (SUD) or small Multi Unit Dwelling (MUD) building is eligible for the REM/Design program if 66% of its units are at or below 60% of State Median Income (SMI) which roughly equates to 200% federal poverty level. (Requirement drops to 50% for buildings with 2 - 4 units). Qualified buildings identified and recorded on a HUD-DOE list need not provide additional income documentation. | - Whole building weatherization is the preferred approach to providing services. However, there are times when providing service to the whole building is not possible. In those situations, the reason needs to be well-documented. Possible reasons for this might be as follows (not exhaustive): Owner / manager refuses access to some / most units; A significant percentage of residents are non-responsive or refuse services; portion of the building is undergoing a rehabilitation; etc.<br>Residents of the unit to be weatherized should be at or below 60% of State Median Income (SMI) which roughly equates to 200% Federal Poverty Level. |
| | - TREAT applies to MUD buildings 4 stories and above, MUD buildings 3 stories or fewer with shared HVAC systems and/or water heating systems, MUD containing more than 25 units and MUD buildings not meeting the REM/Design criteria. The TREAT approach can also be used for buildings having 5 - 24 units provided they have shared centralized heating and cooling systems. | - REM/Design applies to single family dwellings of up to 4 units, mobile homes and low rise multifamily buildings. Buildings containing 5- 24 dwelling units, 3 stories or fewer, individually metered, heated and cooled independently with its own water heater are ideal for the REM/Design approach. | - Buildings / residents may qualify for a unit by unit income qualification approach when the entire building cannot be weatherized as a whole buidling as identified in the section above. This approach restricts what measures can be installed because the whole building cannot be considered a system of inter-connected dwellings. |
| **Documentation** | - Documentation to verify income eligibility not required for HUD-DOE listed buildings . Property managers have to collect 12 - 24 months of utility bills (gas, electric and water) and rent roll from all tenants in the building for energy calculations and proof of residence. Property managers are also required to provide residential demographics per DOE guidelines. | - Documentation verifying income eligibility is not required for HUD-DOE listed buildings, however managers / owners are required to provide residential demographics per DOE guidelines. For smaller buildings not on the HUD-DOE list, individual unit by unit income verification must be completed in order to determine eligibility. Utility bills are not required as a blended utility rate is used to model electrical and natural gas energy costs. For all other fuel types such as wood, propane, fuel oil and others, fuel cost will be based on available billing data on a case by case basis. | - The ESP's project manager with the cooperation of the owner / management goes door to door collecting the income for one month to verify income eligibility and the most recent utility bill to determine energy burden. If a resident over the age of 18 in the household has no income, they must fill out a Declaration of No Income which must be notarized if the building is using DOE funds. |
| **Installation Approach:** | - The ESP contacts the property manager and/or the owner<br>Makes an appointment to carry out an assessment to determine if the property shall go through a TREAT, REM/Design or Unit by Unit approach<br>ESP tells the Property manager and or the building owner the detailed process she/he will have to go through with to get the property weatherized and the documents what will be required.<br>The ESPs and the Property owners/managers sign an MOU | | |
| **Scope and Budget** | - The project manager collects documents required (12 - 24 months of utility bills + Rent roll+ demographic information). | - The manager assists with the collection of required documentation such as the rent roll and demographic information | - The ESP's project manager with the cooperation of the owner / management goes door to door collecting the income for one month to verify income eligibility. |
| | - Then a chosen third party auditor procured by CSD but chosen by the ESP through a streamlined procurement process carries out a whole building energy audit and an audit of sample units representative of the unit types, conditions, sizes and location. Auditor will need to interview key property personnel (manager, maintenance director / staff, owner or owner representative) during the site visit to discuss building energy performance, operations & maintenance procedures, resident behavioral factors as they related to energy usage and health, safety & comfort. | - ESP staff will perform a site assessment including Combustion Appliance Testing (CAS), Blower Door and Duct Blaster tests as required in order to gather information about the general building design characteristics, building envelope, window properties, and mechanical equipment. Information gathering will also include physical measurements of windows and photographs (e.g., building exterior, windows, and mechanical equipment including idenfication tags). ESP assessors will also evaluate units for other measures that are required to be installed prior to or concurrent with the energy audit. Energy modeling is done off-site and the results once approved by CSD will be shared with the property owner / manager. | - ESP staff will perform a site assessment including Combustion Appliance Testing (CAS), Blower Door and Duct Blaster tests as required in order to gather information about the unit(s). Information gathering will also typically include documentation and pictures of the mechanical equipment tags in the event that they may qualify for repair or replacement. ESP assessors will evaluate the unit(s) for measures that are prescriptive in nature and do not require an energy audit. |
| | - The audit is then sent to CSD/RHA for technical review, if it passes the technical review then ESP receives an audit approval letter which can be shared with the owner/manager along with the audit results. If it does not pass technical review then the ESP goes back to auditor to correct the audit based on technical merits to be resubmitted back to CSD/RHA. | - Where measures are identified that are outside of normal operations of the ESP, a bid procurement process must be completed in order to identify cost. Once measure replacement costs are determined and input into REM/Design the audit is complete and submitted to CSD for review and approval. After CSD approves the audit, a copy of the approved measures for installation may be shared with the property owner / manager. | - In this approach the ESP mainly deals with the tenants and not the property owner. There are no buy downs because installed measures are prescriptive in nature and will not require an energy audit. With this approach, Priority List measures designed to be installed in a whole building are not eligible for installation. Whole building measures include items such as ceiling, wall and floor insulation as well as windows and any other building envelope measures. |

# EXHIBIT 4 (Cont.)

| | TREAT | REM/Design | Unit By Unit Assessment |
|---|---|---|---|
| **Scope and Budget (Cont.)** | - ESP must then begin procuring bids for any subcontracted work and/or estimating the cost to perform measures in-house. Once the bid results for feasible measures are complete, ESP must fill-out a Pre-Weatherization Scope of Work (SOW). ESP will share the spreadsheet with owner/manager to demonstrate the order of measures ranked by SIR. Measures with an SIR > 1.0 can ultimately be approved for installation. Those below 1.0 will require buydown funds from the owner or another non-federal source of funding.<br>- Once the SOW is refined and owner / manager decides if buydown is possible for measures < 1.0, the Pre-Weatherization SOW is submitted to CSD / RHA for review. If the measures are ranked correctly based on approved audit results and subcontractor bids / ESP cost estimates, the ESP will receive a Pre-Wx SOW Approval Letter which approves the project to move forward with installation of measures. All measures with an SIR of 1.0 or greater are required to be installed and no feasible measure can be leapfrogged to get to measures ranking lower. | - Once the REM/Design erergy audit approval is received from CSD and shared with the owner / manager, the ESP may begin installation. All measures with an SIR of 1.0 or greater must be installed, and no feasible, qualified measure may be leapfrogged to get to measures that rank lower by SIR. If owner wishes to buydown the cost of a measure(s) that is below 1.0 SIR the ESP can provide the owner with required buydown amounts. Buydown funds are required to be non-federal in origin and may be made from project reserves. If owner / manager wishes to buy down a measure(s), additional supporting documentation must be included as part of the REM/Design submittal to CSD and is considered during the review process. | |
| **Installation** | - Once the SOW is approved the measures can be installed. However some items (like windows, centralized boiler, HVAC, lighting upgrades, etc.) may require permits from the city-planning department before installation begins. Once installation is complete and project is being closed out, ESP will need to submit a Post-Weatherization SOW to CSD / RHA detailing the total costs for the measure installations inclusive of any change orders. Where increased costs cause the SIR to drop below 1.0, additional buydown funds will be necessary. It is expected that the on-site management will assist with the coordination of weatherization work by providing advance notice to residents where needed and 24-Hour Notice of Intent to Enter should it be required. | - Once the approved energy audit is received measures can be installed. However some items (like windows, HVAC, lighting upgrades, etc.) may require building permits from the responsible city department before installation begins. Once installation is complete and project is being closed out, ESP will need to submit invoices, job sheet and other supporting documentation to CSD for close-out analysis. This close-out confirms that cost did not exceed the amounts approved in the energy audit and verifies the energy savings generated by the work. Where increased costs cause the SIR to drop below 1.0, a second REM/Design energy audit may be needed and additional buydown funds will be necessary. If none are provided, the audit and any related expenditures may be disallowed. It is expected that the on-site management will assist with the coordination of weatherization work by providing advance notice to residents where needed and 24-Hour Notice of Intent to Enter should it be required. | - A weatherization crew installs the measures as identified by the ESP's assessor. CSD is not involved in the assessment approval process, but does require that 100% of the units are post inspected and provides a QA inspection for 5% of the units weatherized by each ESP. |
| **Inspections** | - A post installation inspection is carried out to assure all the approved measures are correctly installed. For measures that require building permits there is a secondary inspection conducted by the municipality building department. | | |
| **Total time taken to complete the process** | - 3-6 months | - REM/Design energy audit submittals for SUD are generally reviewed within three (3) business days from receipt by CSD. Depending on complexity of the project, small MUD may require longer turn around. Any required corrections/resubmittals will extend the approval time. Installation, inspection, and close out times are dependent on ESP timelines.<br><br>With the above in mind, it is estimated that MUD's will require 1 - 2 months for completion from initial identification and assessment through the scheduling / coordination of site work. Shorter times may be possible depending on the project size, type of income verification needed and complexity of weatherization work. | - 1- 4 weeks (depends on the number of units in a property) |
| **Potential Measures** | - Typical measures (not an exhaustive list): Low-flow devices, T-Stat setbacks, wall insulation, lighting occupancy sensors / controls, roof insulation, recirculation controls, furnaces, refrigerators, caulking & sealing, water heaters, pipe insulation, lighting retrofits (T12 to T8), programmable T-stats, window film, windows, infiltration reduction, VFD's, air handler timers, chiller replacement, TRV's, water heater storage tank insulation, recirculation pumps, boiler replacement, HVAC units, roof fans, LED exit lights, among others that can be identified under DOE's 10 CFR Part 440 - Appendix A. | - Mandatory measures outside the energy audit (not an exhaustive list) such as: Assessments & Diagnostics (blower door, CAS), Health & Safety (smoke alarms, CO monitors, water heater, manual & programmable T-Stats), Infiltration (weatherstripping, door repair or replacement, glass replacement), and Other Mandatory (CFL's, low-flow devices, water heater blanket).<br><br>Mandatory measures that don't qualify based on climate zone, building type, or a cost that would exceed a maximum cap can be modeled in the energy audit (e.g., ceiling, wall & floor insulation and programmable T-Stat). ESP may also audit Other Optional Measures for energy efficiency in REM-Design (e.g., HVAC systems, shadescreens, window film and windows). | - Prescriptive measures (not an exhaustive list) such as: Assessments & Diagnostics (blower door, CAS), Health & Safety (smoke alarms, CO monitors, water heater, manual & programmable T-Stats), Infiltration (weatherstripping, door repair or replacement, glass replacement), Mandatory (CFL's, low-flow devices, water heater blanket) and Priority List items that qualify by building type and climate zone. |

**EXHIBIT 5**

Properties that received "whole-building" weatherization measures based on a TREAT energy audit (by County)

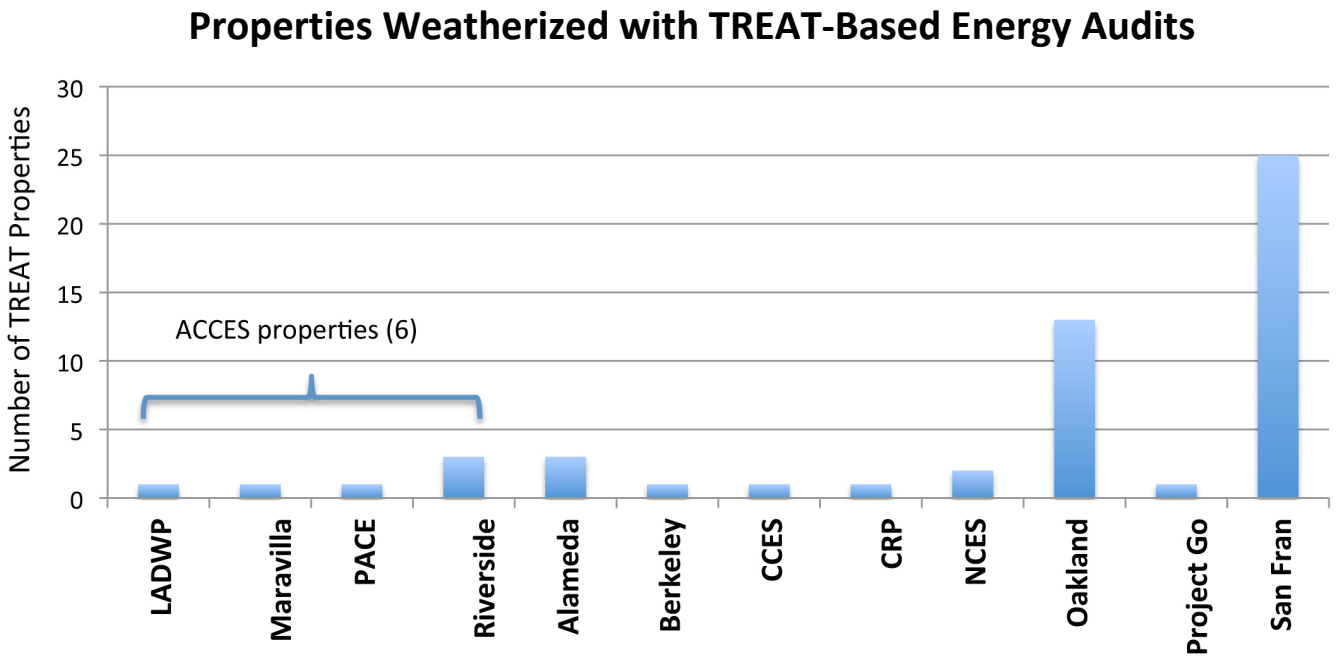


**EXHIBIT 6**

Summary of survey results by Property Representative

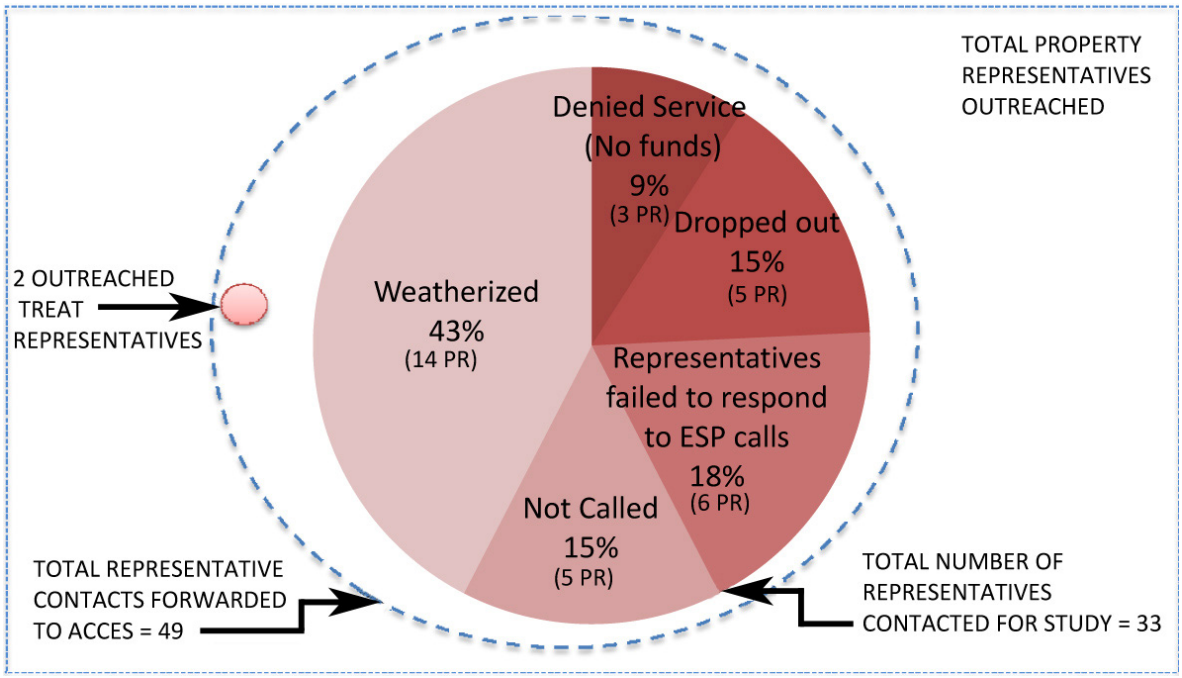
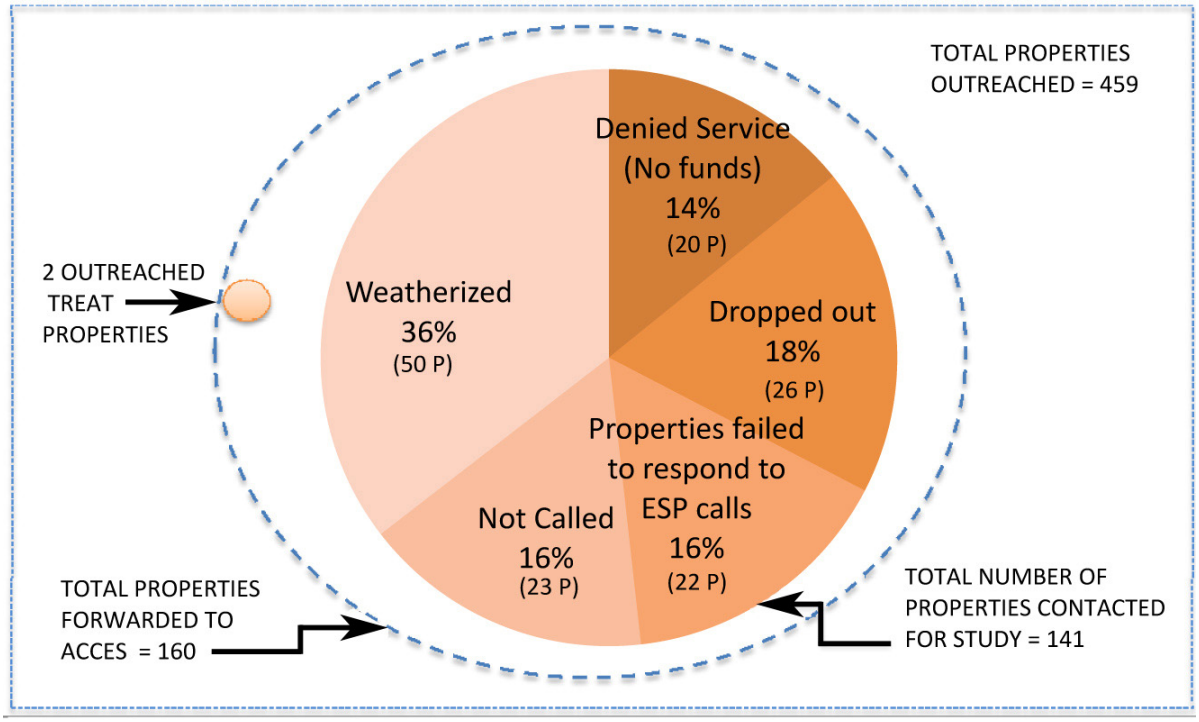


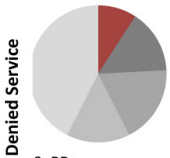
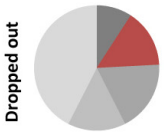

**EXHIBIT 7**

Summary of survey results by Property



# EXHIBIT 8

## Summary of barriers to implementation

| SUMMARY | STAGE | BARRIERS | CASE STUDIES |
|---|---|---|---|
|  No Service Yet<br>11 PRs<br>45 Properties | **Have not yet received services** | **Outreach**<br>PRs were not contacted by the ESPs . | ARPM, Homeownership Made Easy, VALLEY VILLAGE,Housing Authority of the City of Needles, Concerned Citizens of South Central LA, Preservation Partners Management Group, Inc. VIDA Management, |
| | | PRs were contacted by ESPs, but did not respond to contact. | UCPSC FOUNDATION, Elderly Housing Development and Operations Corp, Citrus Grove Preservation Limited Partnership, Irvine Housing Opportunities |
|  Denied Service<br>3 PRs<br>20 Properties | **Denied Services** | PRs made effort to have properties listed on HUD-DOE eligibility list but were denied service because ESP had insufficient funds. | HYDER & COMPANY, ABHOW, RC Investment Group |
| | **Dropped out of the program** | PRs did not want to tamper with the eligibile basis of LIHTC properties. | VOA Housing |
| | | PRs decided to not participate in the program because they heard troubling stories about alleged property damage at the hands of ESPs. | Southern California Presbyterian Home |
| | | PRs were not interested in the program because benefits do not accrue to the owner. | ManSerMar, Inc. |
| | | **Intake**<br>PRs who wanted specific services from the program (e.g., window replacements); dropped out when they saw no possibility of getting those services. | HDSI Management, Inc |
|  Dropped out<br>5 PRs<br>26 Properties | | **Agreement**<br>PRs felt that Service Agreements lacked adequate protections regarding quality of work and liability for damage incurred during the process of weatherization. | MidPen Housing |
|  Weatherized<br>14 PRs<br>50 Properties | **Properties weatherized** (PR observations) | **Documentation**<br>Documenting eligibility and collecting utility bills from all tenants for the energy audit was time consuming and difficult. When the ESPs reverted from a whole building approach to an individual unit/prescriptive approach and leveraged LIHEAP funding, PRs had repeat the documentation process due to inconsistent program standards. | LINC, CSI |
| | | **Assement / Audit**<br>PRs participated in the program expecting a whole-building audit but received only individual unit assessments. | LINC, CSI |
| | | **Implementation**<br>ESPs did not clearly communicate with PRs about work occurring onsite. PRs had trouble contacting or communicating with the person in charge of the project at the ESP. | ARM Property Managers, Housing Authority of the County of San Bernardino, |
| | | PRs could not understand why all eligible units did not receive similar services. | CSI, JAE Properties inc. |
| | | **Inspections**<br>Multiple inspections conducted under the different weatherization programs at different times troubled tenants. | |
| | | **Final Reports**<br>PRs did not receive an inventory of the measures ultimately installed. | G & K Management Co., Inc., CSI |
| | | PRs were thankful for what they received, but were unsatisfied with the program as they expected to receive whole-building assessments and measures, but only received weatherization for individual units. | CSI, Eugene Burger Management Corporation, |

***Based on interviews with 33 Property Representatives (PRs i.e. Owners or Managers responsible for taking decisions on the WAP)**

## EXHIBIT 9

## Summary of Recommendations

| Stage of program affected | Recommendation |
|---|---|
| All | Establish/Improve MFD WAP Policies & Procedures |
| All | Improve communication protocols/standards |
| Intake | Develop & implement pre-assessment procedures |
| Intake, Eligibility | Streamline intake and eligibility processes |
| Audit/Assessment | Re-evaluate audit tools |
| Audit/Assessment | Expand REM-based protocol to include whole-building measures |
| Audit/Assessment | Streamline evaluation of measures based on cost-benefit analyses |
| Audit, Closeout | Coordinate inspections |
| Audit, Post-WAP | Benchmark and analyze energy savings |
| Agreement | Reframe service contracts to address concerns about property damage |