

# Low-Income Weatherization Program Guidelines

- LARGE MULTI-FAMILY (LMF) ENERGY EFFICIENCY AND RENEWABLES



Department of Community Services & Development

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# DEPARTMENT OF COMMUNITY SERVICES AND DEVELOPMENT

## LOW-INCOME WEATHERIZATION PROGRAM

### PROGRAM GUIDELINES

Large Multi-Family Energy Efficiency and Renewables

#### I. Introduction

The California Department of Community Services and Development (CSD) developed the following program guidelines for the implementation of its Low-Income Weatherization Program (LIWP) for large multi-family (LMF) buildings. The LIWP-LMF Program is an integral part of the California Climate Investments that are funded by State Cap-and-Trade auction proceeds. With program oversight and direction provided by the California Air Resources Board (ARB), CSD and a network of LIWP Providers will offer services to reduce Greenhouse Gas (GHG) emissions and provide important co-benefits to qualifying low-income households in designated *disadvantaged communities (DACs)*, as identified by the California Environmental Protection Agency (CalEPA).

The guidelines describe how and where CSD will implement the LIWP-Large Multi-Family (LIWP-LMF) Program. Though CSD's state budget appropriation for LIWP includes funding for single family and small multi-family weatherization, these guidelines do not include that program component. CSD has separate Program Guidelines for the single family and small multi-family portion of LIWP that are available on CSD's website at [www.csd.ca.gov](http://www.csd.ca.gov).

#### II. Guidelines Scope

The purpose of these guidelines is to define CSD's LIWP-LMF Program. The purpose of LIWP-LMF is to install cost-effective energy efficiency ("weatherization") measures and solar photovoltaics in large multi-family dwellings of qualifying low-income households to reduce energy use and GHG emissions. In addition, LIWP-LMF will provide other co-benefits to the state such as reducing air pollution, helping achieve air quality standards, reducing energy costs and water usage, stimulating the economy and creating jobs.

In 2012, the Legislature passed, and Governor Brown signed into law, three related bills—AB 1532 (Perez, Chapter 807), SB 535 (De Leon, Chapter 830), and SB 1018 (Budget and Fiscal Review Committee, Chapter 39). Among other things, these bills mandate a portion of the funds from the California Climate Investments Program be invested to benefit disadvantaged communities. Every three years, the California Department of Finance (DOF) submits a plan to the Legislature, identifying priority investments that will help achieve greenhouse gas reduction goals. Each fiscal year, the Legislature appropriates monies for California Climate Investments in accordance with this 3-year investment plan. The current version is the "*Cap and Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16.*"

In the State Fiscal Year (SFY) 2014/15 budget, a total of \$832M was appropriated from the California Climate Investments Program to 12 state agencies, including \$75M to CSD for the implementation of LIWP. An allocation of \$24 million has been made to the LMF Program, with additional amounts allocated to single-family and small multi-family developments and single-family solar photovoltaics. As work progresses on LIWP, CSD may adjust allocation categories to best meet the goals of the program. Regardless of the adjustments, all funds will stay wholly within the disadvantaged communities and be used to serve qualifying low-income households.

### III. Program Description and Overview

#### a. CSD's History and Programs

CSD has been serving low-income communities for 50 years. Originally known as the "State Office of Economic Opportunity," the office was created as a result of the federal Economic Opportunity Act of 1964.

A state department under the California Health and Human Services Agency, CSD partners with a network of private, non-profit and local government organizations, who are dedicated to helping low-income families and individuals achieve and maintain self-sufficiency, manage their home energy needs and reside in housing free from the dangers of lead hazards.

CSD administers the following federal programs that are intended to reduce poverty and improve the lives of low-income Californians:

- U.S. Department of Health & Human Services Community Services Block Grant (CSBG)
- U.S. Department of Health & Human Services Low-Income Home Energy Assistance Program (LIHEAP)
- U.S. Department of Energy Weatherization Assistance Program (DOE WAP)
- U.S. Department of Housing and Urban Development (HUD), Lead-Based Paint Hazard Control Program

In SFY 2014/2015, CSD received funding to administer the following state programs intended to reduce greenhouse gas emissions and reduce utility costs for low-income Californians:

- LIWP Single-Family Weatherization, Small Multi-Family Weatherization and Single-Family Solar Photovoltaics
- LIWP Large Multi-Family Energy Efficiency and Renewables

#### b. LIWP Large Multi-family Service Provider:

CSD has procured a service provider to administer the LIWP-LMF Program. All assessed LMF buildings will be evaluated for both energy efficiency and solar photovoltaic measure opportunities.

The service provider implementing the LMF Program is referred to as the LMF Service Provider in this document.

The selected LMF Service Provider is the Association for Energy Affordability (AEA). Contact details are as follows:

5900 Hollis Street, Suite R2, Emeryville, CA 94608

Phone: 510.431.1791

Email: [LIWPinfo@aea.us.org](mailto:LIWPinfo@aea.us.org)

AEA and its subcontractors and provider network will provide services in the large multi-family whole building weatherization and solar photovoltaics service components of the LIWP program.

#### IV. Disadvantaged Communities

SB 535 (De Leon, Chapter 830) requires that at least 25 percent of funds from the California Climate Investments Program must be invested to benefit disadvantaged communities and at least 10 percent be invested within the disadvantaged communities.

The California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) developed CalEnviroScreen. In October 2014, the California Secretary of Environmental Protection used CalEnviroScreen 2.0 to identify the top 25 percent of census tracts as “disadvantaged communities” for the purpose of California Climate Investments.

Maps of disadvantaged community census tracts and other related information can be viewed at: <http://www.calepa.ca.gov/EnvJustice/GHGInvest/default.htm>

CalEnviroScreen 2.0 uses 19 indicators divided into two broad categories: “pollution indicators,” which includes exposures as well as environmental effects, and “population indicators,” which includes sensitive populations and socioeconomic factors, specifically:

<b>POLLUTION INDICATORS:</b>	<b>POPULATION INDICATORS:</b>
Air Quality: Ozone	Children and elderly
Air Quality: PM 2.5	Low birth weight
Diesel Particulate Matter	Asthma emergency visits
Pesticide Use	Educational attainment
Toxic Releases from Facilities	Linguistic Isolation
Traffic Density	Poverty
Cleanup Sites	Unemployment
Groundwater Threats	
Hazardous Waste Facilities and Generators	
Impaired Water Bodies	
Solid Waste Sites and Facilities	
Drinking Water	

Each “census tract” in the state was assigned a value for each of the indicators relative to all other census tracts. A census tract is a small, subdivision of a county. In general, each census tract contains an average of about 4,000 people, though they may range from 1,200 to 10,000. There are over 8,000 census tracts in California. The census tract indicator scores were totaled to determine an overall CalEnviroScreen Score, the higher the score, the greater the impact.

In October 2014, CalEPA identified the top 25 percent of these census tracts as “disadvantaged communities” for the purpose of investing auction proceeds. The top 25 percent of the census tracts equal 1,993 individual tracts, containing 9.4 million people and distributed amongst 29 California counties. These counties are shown below, but only the designated disadvantaged community census tracts in these counties are eligible for LIWP-LMF:

Alameda	Butte	Contra Costa	Fresno	Imperial
Kern	Kings	Los Angeles	Madera	Merced
Monterey	Orange	Riverside	Sacramento	San Bernardino
San Diego	San Francisco	San Joaquin	San Mateo	Santa Barbara
Santa Clara	Santa Cruz	Solano	Stanislaus	Tehama
Tulare	Ventura	Yolo	Yuba	--

To determine if a large multi-family property is located within a disadvantaged community, contact AEA at [LIWPinfo@aea.us.org](mailto:LIWPinfo@aea.us.org) or review the DAC map as posted on the CalEnviroScreen 2.0 at <http://www.calepa.ca.gov/EnvJustice/GHGInvest/default.htm>) and attached as Exhibit B.

## V. LIWP Goals

### a. Goal #1: Maximize GHG Reductions

The reduction of GHG emissions is the primary goal of LIWP. Assembly Bill 32 (AB 32)—also known as the California Global Warming Solutions Act of 2006—mandates the return of state GHG emissions to 1990 levels by the year 2020. AB 32 established California as a global leader on reducing greenhouse gases and prescribes a comprehensive and long-term approach to addressing climate change in a way that aims to improve the environment and natural resources while maintaining a robust economy.

CSD modeled its LMF Program to improve the energy efficiency of LMF buildings within disadvantaged communities and achieve GHG emission reductions. Each building is comprehensively assessed and evaluated both visually and through the use of diagnostic and energy audit tools to determine a suite of GHG-reducing energy efficiency and renewable energy measures for installation in living and common areas.

Leaking gas appliances, non-functioning heating and cooling systems when temperatures dramatically rise or fall, and other health and safety issues can be deadly. Remedying health and safety issues may cause a rise in energy use and GHG production, however, the importance of protecting the health, safety and well-being of occupants requires that such safety hazards be promptly mitigated and not go unaddressed. For this reason, CSD will continue to assess and remediate health and safety issues, and depend on the property owner’s financial participation and the availability of leveraged funds to offset the cost of health and safety measures that do not result in GHG reductions. LIWP funds will be used for the installation of energy efficiency measures, including supporting activities, as well as for investments in renewable energy that result in energy savings and reduced GHGs. Accordingly the financial participation of the property owner will help defray the cost of services and address health and safety concerns, thereby ensuring optimal use of program funds maximizing GHG reduction.

### b. Goal #2: Maximize Co-Benefits to Disadvantaged Communities

While GHG reduction is the primary goal of the California Climate Investments, another highly important objective of CSD’s LIWP-LMF Program are the “co-benefits” derived from service delivery.

The Investment Plan goals include:

- Maximizing economic and environmental benefits;
- Fostering job creation; and
- Direct investment toward the most disadvantaged communities and households (“Disadvantaged Communities” are discussed in detail in Section IV of this document).

Weatherization measures and solar photovoltaics installed as part of LIWP-LMF are well-suited to provide direct and meaningful benefits to disadvantaged communities. LIWP measures will achieve GHG reductions by increasing energy efficiency or renewable energy generation and will be installed in large multi-family buildings located in the identified disadvantaged community census tracts.

GHG reduction, energy efficiency and renewable energy go hand-in-hand—the less energy used as a result of weatherization, or the more energy generated by photovoltaics, the less GHG is produced. When energy bills are lowered, more household income is available for necessities like food, transportation, housing and medicine, as well as for discretionary spending. Reduced energy costs result in higher levels of consumer spending within communities, thereby stimulating the local economy and spurring investment and hiring. Accordingly, CSD will not only be able to determine the GHG reduction consequent each LMF project, but the annual savings realized by each household as well.

In addition to reducing energy costs in disadvantaged communities, the LMF Program will offer economic benefits in the form of employment training and opportunities. Local economies will also benefit from contractor expenditures for supplies and the retention of specialty contractor services within disadvantaged communities.

CSD will work with the LMF Service Provider to determine appropriate ways to achieve these goals in the disadvantaged communities. It will be the responsibility of the LMF Service Provider to track and report project information to CSD in accordance with the recordkeeping and reporting guidance developed by ARB (e.g., hours trained, hours worked, individuals employed and whether employees are residents of disadvantaged communities, amount of LIWP funding used to provide job training and employment) and ensure consistency with local, state and federal law.

The LMF Service Provider will utilize a variety of approaches to promote workforce development, to include:

- Partnering with the local Workforce Investment Board to offer internships/hands-on training to individuals who have received classroom or other training elsewhere;
- Promoting the hiring of workers from disadvantaged communities to fill existing vacancies or positions created as a result of LIWP;
- Encouraging employment agreements with installation contractors to hire individuals from the disadvantaged community;
- Giving priority to installation contractors from the disadvantaged community areas; and,
- Fostering professional development in the trades, and offering experience certificates and references for the long-term unemployed.

The LMF Program offers CSD an opportunity to provide workforce development in areas where there is a shortage of skilled and semi-skilled labor. Interns working with experts in the field will receive valuable professional development experience. Workforce development partners, their sub-contractors and property owners will also be able to recruit from this skilled workforce. The

emphasis will be on creating good paying jobs, a safe work environment and a skilled workforce from the disadvantaged communities.

## **VI. Project Types**

LIWP funds will be used to install weatherization and renewables such as solar photovoltaics in large multi-family buildings.

“Weatherization” is the process of making dwellings more energy efficient, resulting in lower energy use and costs. Weatherization and renewable energy systems all contribute to the reduction of GHG emissions.

Under CSD’s LMF Program, health and safety measures (such as the repair of unsafe combustion appliances) will be evaluated and the identified concerns will be addressed with the property owner. Each owner will be responsible for the cost of health and safety measures unless mitigation can be accomplished by the installation of new, more energy efficient equipment that results in GHG reduction, with cost allocation to be determined by the parties.

### **a. Project Types- Description**

The LIWP-LMF Provider will serve Large Multi-Family Buildings – “Large” multi-family refers to apartment buildings with 20 or more residential units, whether or not served by a central hot water, heating and/or cooling system, as well as multi-building complexes with at least one building of 20 or more units. These buildings or complexes will be assessed for, and may be eligible to receive, weatherization and energy efficiency measures as well as solar photovoltaic systems.

### **b. LMF Weatherization**

All LMF project work will be predicated on the best use of LIWP-LMF funding which will emphasize measures that are both cost-effective and that are expected to yield significant GHG reductions/energy savings per dollar as determined by the LMF Service Provider and CSD.

Factors that affect the evaluation of installing LIWP measures include:

- Project location must be within a Disadvantaged Community (See Section IV).
- Local climate conditions. For example, an air conditioning system that may prove cost-effective in the Central Valley may not be cost-effective on the coast where temperatures are more moderate.
- Existing levels of insulation and type of building envelope.
- Condition of existing mechanical systems, appliances and other systems that use energy on a whole building basis.
- The number of occupants in the LMF dwelling, its common area energy burden, and the apartments’ energy use patterns.
- Estimates of energy savings and GHG reduction returns.
- Level of property owner financial participation.
- Demonstration of benefits to tenants.

### **c. Solar Photovoltaics**

Large Multi-Family buildings will be assessed independently by the LMF Service Provider and evaluated by CSD to determine the potential for the installation of solar photovoltaic systems.

Factors that will be evaluated include, but are not limited to:

- Property must be located within a Disadvantaged Community (See Section IV).
- Suitable orientation of building.
- Available and adequate unshaded roof space.
- Roof condition.
- Access and layout of existing mechanical equipment.
- Property electrical metering structure and access to meters.
- Estimates of energy savings and GHG reduction returns.
- Compatibility with available rebate programs.
- Level of property owner financial participation.
- Demonstration of benefits to tenants.

## **VII. Allocation of Dollars**

LIWP funding of \$24 million has been allocated to LIWP-LMF weatherization and solar photovoltaics. This does not include the funding leveraged from other potential sources. It is estimated approximately 5,000 households will benefit from the LMF Program.

Project applications will be evaluated on their merits, and the LMF Service Provider will attempt to target LMF buildings with the greatest energy waste. As part of the initial assessment, a building's energy usage data will be analyzed to develop a scope of work that will prioritize the efficiency and renewable measures with the greatest potential for GHG reductions.

CSD and the LMF Service Provider will take appropriate measures to structure contracts and participation agreements to ensure anti-displacement and affordability provisions are considered.

## **VIII. LIWP LMF Design**

CSD's LMF Service Provider will offer turnkey weatherization and solar photovoltaic services to property owners. The services include procurement assistance, site assessment, energy modeling and customized work scope development, construction management assistance, and post-construction quality assurance, verification, and training support, along with energy education and training to tenants and property owners. The LMF Service Provider will incorporate industry best practices for whole-building weatherization, along with operations and maintenance improvements, to develop plans for cost and carbon-effective energy retrofits that maximize energy savings. The LMF Service Provider will help the property owner determine the best value and mix of measures for the property. The options will include energy efficiency retrofits, general improvements and innovations that will provide significant GHG reductions.

Preliminary screening methodologies will identify maximized energy and programmatic efficiencies, including benchmarking assistance and outreach to low-income properties located within the DACs. All outreach to property owners will be coordinated by the LMF Service Provider, or its agents, for project intake.

The LMF Service Provider will perform whole building energy audits or analysis to assess the installation of eligible energy efficiency measures. Each property shall have a whole building performance target based upon energy modeling software that documents the building's existing conditions, prospective efficiency upgrades and expected post-retrofit conditions. If similar buildings exist within a complex, a reasonable representative sample of buildings will be sufficient to meet this requirement for the complex. Based upon the audit analysis, the LMF Service Provider will negotiate with property representatives to install all measures with an acceptable Savings-to-Investment Ratio (SIR). Examples of possible measures are outlined in

Exhibit C. CSD and the LMF Service Provider will continue to evaluate the interrelationship between SIR, energy savings and GHG reductions for quantification considerations for the LMF Program. For each project, property owner co-investment will be required. Where other funding sources exist, the property owner will be encouraged to utilize these resources to the extent possible to leverage with property owner project co-investment. For cases in which the property owner has multiple projects in their portfolio and each property has different levels of available cash reserves, the property owner may choose to offset the co-investment for a project being done in one building with the co-investment for a project being done in another. The LMF Service Provider will serve as a single point of contact for the coordination of leveraged rebates and incentives, and ensure that a property owner's co-investment is accounted for.

For each large multi-family project, the LMF Service Provider will assist in developing the project scope of work and measure installation specifications. Bulk purchasing resources and installation contractor bidding support may be provided to assist the property owner with cost controls and to optimize project cost effectiveness. The LMF Service Provider will provide technical support, as needed by property owner, for the procurement of appropriate installation contractors to complete the weatherization and solar initiative work. Training opportunities will be provided for installation contractors to ensure they understand energy efficiency installation best practices and program requirements.

The LMF Service Provider will ensure the application of relevant state and federal standards, policies, laws and local ordinances, and will assist CSD and large multi-family property representatives in understanding and implementing relevant new standards and technologies. Any installation contractors hired must possess all required licenses and certifications to perform the applicable installation work.

Additionally, the LMF Service Provider will also provide construction oversight at all critical phases and perform quality assurance testing and verification on measures installed. The LMF Service Provider will generate periodic reports to CSD and closeout reports for each LMF project served under the LIWP-LMF Program. The project report for each property will identify the GHG reductions, energy savings (common area and in unit), and measures installed. Furthermore, ongoing "utility use" monitoring will be provided for the duration of the contract term. A project close-out report will be provided to the property owner and technical assistance regarding installed measures offered to the property operation staff.

## **IX. Quantification of Benefits and Co-Benefits**

### **a. Approach and Method for Quantifying GHG Reduction for Weatherization Measures and Solar Photovoltaics**

CSD has worked with ARB and industry stakeholders to establish preliminary GHG reduction methodologies that will provide guidance on data collection and GHG reduction estimation for LIWP-LMF projects. In order to generate consistent data for LIWP-LMF, CSD will perform all calculations to quantify energy savings and GHG emission reductions. CSD and ARB intend to determine energy savings and the associated GHG reduction estimates using data reported to CSD by the LMF Service Provider during program implementation.

For example, the LMF Service Provider will be required each month to electronically report completed measures and measure information to CSD with status updates on GHG reduction goals for each project. Reported measure details combined with historical energy consumption data (either actual or estimated) will form the basis for determining per-building energy and GHG savings.

Section XII contains a preliminary list of data reporting expectations. Preliminary energy savings and GHG reduction estimation approaches are identified below.

b. Determining Energy Savings

CSD is currently working with ARB to finalize the methodology for quantifying energy savings for LIWP measures. These methods may include a “deemed savings approach,” which uses energy industry standards and data to calculate saving averages for commonly-installed measures, or an energy model approach using actual utility billing data (to the extent available) to quantify energy efficiency over a defined period of time (e.g. the preceding twelve months and twelve months post weatherization), or a combination of both. CSD and ARB may utilize both approaches due to the challenges in obtaining actual utility billing data, the highly mobile nature of many low-income households, and variances which impact residential energy consumption such as changes in the climate, household composition, and consumer behavior.

c. Determining GHG Emissions Reductions from Energy Savings

CSD and ARB anticipate calculating GHG reductions based on emission factors derived from total in-state and imported electricity emissions (MTCO<sub>2</sub>e) divided by the total consumption in MegaWatt Hour (MWh). Emissions data from ARB’s GHG Inventory (2012) and consumption data from CEC’s Energy Almanac (2012) will be utilized to perform this calculation. CSD and ARB will identify the appropriate emission factors for calculating GHG reductions from equipment utilizing other energy (e.g. natural gas).

d. Approach and Method for Quantifying Workforce Development

The participating LMF Service Provider and project installation contractors will provide opportunities for employment, job-training and professional development benefits. The methods the LMF Program uses will vary based on the demographics and needs of local communities associated with the participating upgrade projects.

CSD will work with the LMF Service Provider to identify target goals and the best options for workforce development in each phase of the large multi-family program. Once the goals and best options are determined, the LMF Service Provider will be required to report full-time jobs created, training hours provided and other information necessary to document benefits to disadvantaged communities. Because it is a new program for CSD, the LIWP-LMF Program has no baseline of existing workforce in this program sub-component.

e. Approach and Method for Quantifying Household Savings

To estimate individual household and building’s energy savings, CSD will multiply anticipated energy savings by the blended utility rates to arrive at an estimated, annual dollar savings per apartment and per building.

f. Approach and Method for Quantifying Other Co-Benefits

CSD and the LMF Service Provider will produce a narrative description of any additional co-benefits to tenants identified in project implementation (e.g. energy efficiency education).

**X. Household Eligibility for Large Multi-Family Dwellings**

Property owners or renters that meet the eligibility requirements outlined in this section and specifically the income qualifications described in subsection (c) can apply for weatherization and renewable services by contacting the LMF Service Provider.

Buildings may be prioritized for services based on low-income qualification and level of energy usage.

Weatherization and Solar Photovoltaics Eligibility Requirements:

- a. All large multi-family buildings must be located in a DAC as defined by the California Environmental Protection Agency. (See Section IV of this document)
- b. All LIWP-LMF projects must reduce GHG emissions and reduce energy consumption.
- c. Weatherization and Solar Photovoltaics Income Qualification: Buildings may qualify for LMF weatherization services and solar photovoltaic systems provided that at least 66% of the dwelling units in a building are occupied by households with incomes at or below 80% of Area Median Income (AMI).
- d. A property owner co-investment level will be applicable to every property.

## **XI. Monitoring**

The LMF Service Provider will be accountable for providing monitoring compliance of all projects. CSD has an in-house field monitoring staff primarily responsible for conducting desk reviews of LIWP-LMF weatherization and solar installations. The field monitoring staff will also perform on-site visits at LMF project locations.

During monitoring visits, CSD's representatives will verify the LMF Service Provider's adherence to contractual obligations. Failure to adhere to contractual obligations may be subject to a loss of funding and/or cost disallowance. Property owner and client interviews will also be conducted to verify adherence to service agreements and affordability requirements.

## **XII. Reporting and Auditing**

Reporting and recordkeeping requirements will be the responsibility of both CSD and the LMF Service Provider. All reports must be consistent with the quantification methodologies and reporting guidance<sup>1</sup> developed by ARB and the requirements established by CSD in these guidelines. The level and duration of reporting and record retention will vary depending upon project type and will be specified in the LMF Service Provider contract. At a minimum, the LMF Service Provider will be required to report to CSD basic project information for all properties and units weatherized during the funding or contract term.

The LMF Service Provider will also be required to report to CSD project information that demonstrates the energy and GHG savings achieved, disadvantaged community benefits, other implementation metrics, and other quantification data determined by CSD and ARB.

Project level information would include, but is not limited to project location, project type, building characteristics, specific weatherization measures installed per project, diagnostics performed, historical building energy usage, estimated and actual energy savings, estimated project savings calculation method, and solar photovoltaic system design and specifications.

To support the program's disadvantaged community and California Climate Investments goals, the LMF Service Provider will track and report additional aggregate information, including but not limited to, LIWP dollars spent in a disadvantaged community census tract, whether installation

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<sup>1</sup> Detailed reporting requirements are contained in ARB's Funding Guidelines Volume 3, Tables 3.A-7 and 3.A-16. This document is available at:

[http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/funding\\_guidelines\\_public\\_proposed\\_draft\\_09-04-2015.pdf](http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/funding_guidelines_public_proposed_draft_09-04-2015.pdf)

contractors and their employees are residents within a DAC, the number of personnel trained, and the amount of LIWP funding used for job training or employment.

CSD may also impose other reporting requirements that will track and manage progress toward goals, and to report, as necessary, to other agencies and organizations that seek updates on the progress of California Climate Investments spending.

For project auditing, the state shall have the right to inspect the work and associated records at any and all reasonable times as part of LIWP-LMF oversight. This right shall extend to any subcontracts, and the LMF Service Provider shall include provisions ensuring such access in all its contracts or subcontracts.

### **XIII. LIWP Future**

The LIWP–LMF Program is a new sub-program component. It is the only whole building weatherization program that includes general weatherization with solar photovoltaics, allows “in-unit” and common area measures, and is available to both affordable housing and market rate properties housing low-income residents.

Its key highlights include: working exclusively within disadvantaged communities, requiring that all projects reduce GHG emissions, and leveraging funding sources to allow more energy efficiency measures to qualify within the proposed package of services.

As LIWP-LMF is implemented, CSD may find cause to modify the program design to make program implementation more effective and efficient. Such changes could include adjustments in oversight, quality assurance and verification inspections, measures to be installed, reporting requirements, processes for stakeholder engagement and collaboration with advisory forums, etc. If such changes are necessary, and CSD determines those changes to be substantive, CSD will modify these Program Guidelines. Changes to these program guidelines will be posted on CSD’s website at [www.csd.ca.gov](http://www.csd.ca.gov). To receive notification of any changes to the LIWP-LMF Program, including changes to these guidelines, sign up on the LIWP page to receive LIWP-LMF updates via email.

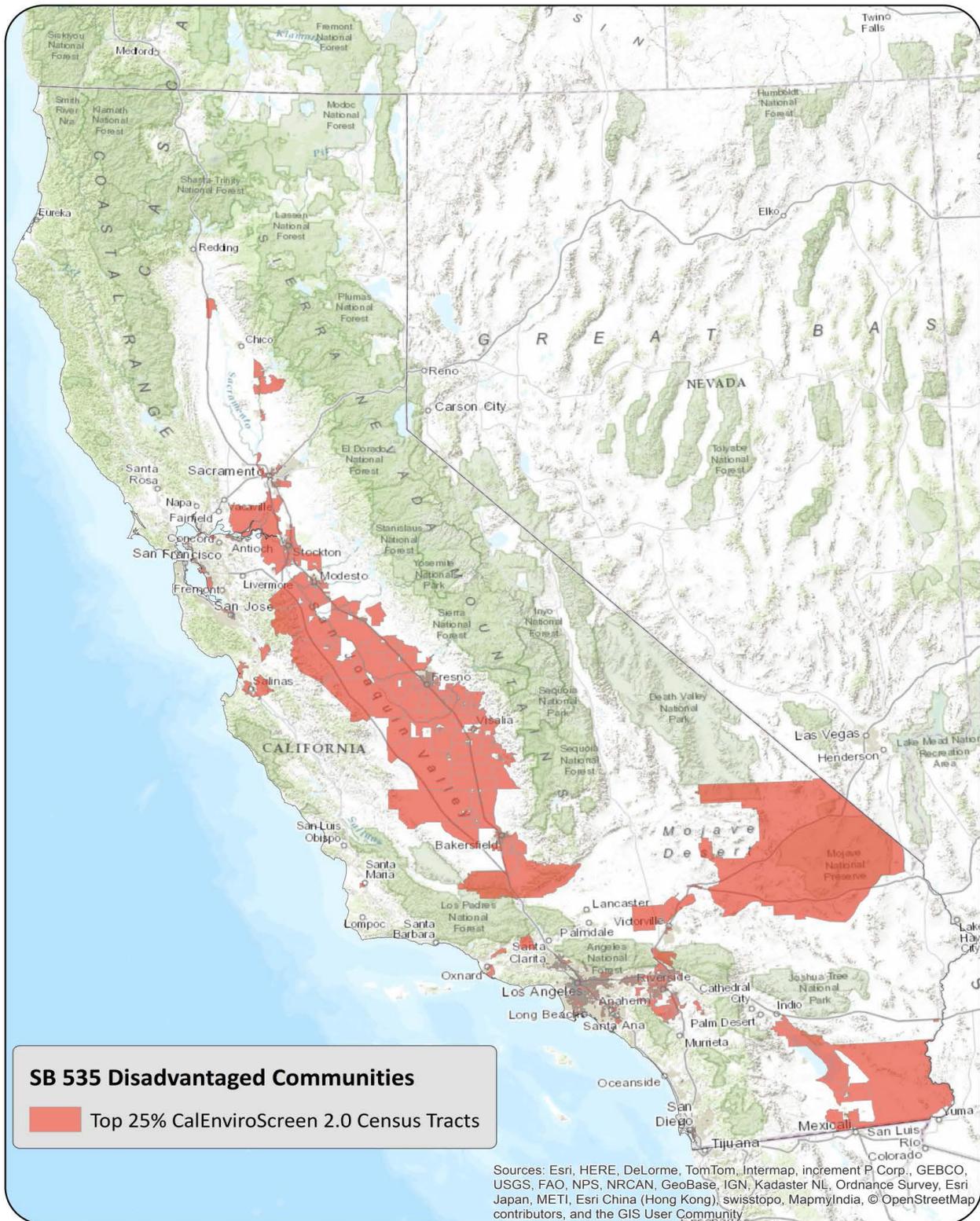
### **Exhibits**

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## EXHIBIT A: ACRONYMS

ACM	Asbestos Containing Materials
AEA	Association for Energy Affordability
AMI	Area Median Income
APTR	Annual Project Tracking Report
ARB	Air Resources Board
ASHRAE	American Society of Heating and Air-Conditioning Engineers
BPI	Building Performance Institute
CalEPA	California Environmental Protection Agency
CCC	Contractor Certification Clauses
CCOR	Contract Close Out Report
CEC	California Energy Commission
CIR	Carbon Investment Return
CO <sub>2</sub>	Carbon Dioxide gas
CO <sub>2e</sub>	Carbon Dioxide gas emission (reductions)
CSBG	Community Services Block Grant
CSD	Department of Community Services and Development
CT	Census Tract
DAC	Disadvantaged Communities
DOE	Department of Energy
DVBE	Disabled Veteran Business Enterprise
DWR	Department of Water Resources
EE	Energy Efficiency – generic term to describe energy conservation measures
EPA	U.S. Environmental Protection Agency
EUI	Energy Use Intensity data
FEDS	Facility Energy Decision System (url: <a href="http://www.pnl.gov/FEDS">www.pnl.gov/FEDS</a> )
GGRF	Greenhouse Gas Reduction Fund
GHG	Green House Gases
GTC	The State of California’s contracting General Terms and Conditions
HHS	U.S. Department of Health & Human Services
H & S	Health and safety (measures)
HUD	US Department of Housing and Urban Development
IOU	Investor-owned utility
IPMVP	International Performance Measurement and Verification Protocol (url: <a href="http://www.evo-world.org">www.evo-world.org</a> )
Kbtu	A thousand British thermal units (Kbtu)
kWh	Kilo watt hour
LIHEAP	Low-Income Home Energy Assistance Program
LIHTC	Low Income Housing Tax Credit
LIWP	Low-Income Weatherization Program
LMF	Large Multi-Family dwellings
LSW	Lead Safe Weatherization
MTCO <sub>2</sub>	Metric tons of Carbon Dioxide gas
MUD	Generic term for Large Multi-family (LMF) Dwelling/Multi-Unit Dwelling/Multi-Tenant Dwelling.
NO <sub>x</sub>	Generic term for the oxides of Nitrogen such as NO and NO <sub>2</sub> (Nitric Oxide and Nitrogen Dioxide)
OEHHA	CalEPA’s Office of Environmental Health Hazard Assessment
O&M	Operations and maintenance (practices of a property’s maintenance crew)
PCOR	Project Close-Out Report (Stop Work)
PCR-1	Project Completion Report -1
PCR-2	Project Corrections Report -2
PO	Property Owner
PPC	Project Priority Considerations
PTR	Project Tracking Report
PV	Photovoltaics
QA & V	Quality Assurance and Verification
QA-QC	Quality Assurance and Quality Control
RESNET	Residential Energy Services Network
SIR	Savings-to-Investment Ratio
SMF	Small Multi-family dwellings
SOW	Scope of Work
SOQ	Statement of Qualifications
T & TA	Training and Technical Assistance
TREAT	Targeted Retrofit Energy Analysis Tool
UMP	Uniform Methods Project (url: <a href="http://energy.gov/eere/about-us/ump-home">energy.gov/eere/about-us/ump-home</a> )
VNM	Virtual Net Energy Metering
VSM	Variable Speed Motors
WAP	Weatherization Assistance Program
WIPR	QA&V work in progress reports (WIPR) from Provider or CSD staff (Oversight Reports)
WIS	CSD’s Weatherization Installation Standards
Wx.	Weatherization

## EXHIBIT B: MAP OF DISADVANTAGED COMMUNITIES (DACs)



## EXHIBIT C: LIST OF LIWP-LMF MEASURES

Possible LIWP-LMF measures include, but are not limited to:

<b>Measure: Measure Name</b>	<b>Measure Type</b>
High Efficiency Clothes Washer - In-Unit	Appliances
High Efficiency Clothes Washer - Common	Appliances
High Efficiency Laundry Dryer - In-Unit	Appliances
High Efficiency Laundry Dryer - Common	Appliances
ENERGY STAR® Dishwasher	Appliances
ENERGY STAR® Refrigerator	Appliances
Vending Machine Controller	Appliances
Combustion Safety Repairs	Health and Safety
Other	Health and Safety
Floor Insulation	Building Envelope
Wall Insulation	Building Envelope
Title 24 Compliant Windows	Building Envelope
Window Shading	Building Envelope
Cool Roof	Building Envelope
Air Sealing	Building Envelope
Unit Lighting	Lighting
Common Area Lighting	Lighting
Exterior Lighting	Lighting
Pool/Spa Heater	Pool
Pool Cover	Pool
Variable Speed Pool Pump	Pool
In-Unit FAU (with or without split A/C)	Space Heating & Cooling
Rooftop FAU (with or without A/C)	Space Heating & Cooling
Terminal A/C or HP	Space Heating & Cooling
Ductless Heat Pump	Space Heating & Cooling
Central Hydronic Boiler	Space Heating & Cooling
Central Steam Boiler/Burner	Space Heating & Cooling
Hydronic/Steam/Chilled Water Pipe Insulation	Space Heating & Cooling
Refrigerant Charge Verification	Space Heating & Cooling
Central Cooling Equipment	Space Heating & Cooling
Variable Speed Pumps and Fans	Space Heating & Cooling
Attic Insulation	Building Envelope

Steam/Hydronic Distribution Upgrades (Balancing, TRV, etc)	Space Heating & Cooling
Central HVAC Control Upgrade (WWSD, Outdoor Reset)	Space Heating & Cooling
Duct Sealing/Insulation	Space Heating & Cooling
Residential Water Heater	Water Heating
Central Water Heater	Water Heating
Recirculation Pump Temperature Controls	Water Heating
Recirculation Pump Demand Controls	Water Heating
DHW Pipe Insulation	Water Heating
Low Flow Aerators and/or Showerheads	Water Heating
Solar PV System	Solar
Solar Thermal (Central)	Solar
Solar Thermal (In-Unit)	Solar
Energy Education	Education
Other	Other