Service Delivery Plan

LOW-INCOME WEATHERIZATION PROGRAM

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Multi-Family

Energy Efficiency & Renewables

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www.camultifamilyenergyefficiency.org

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1. PROGRAM OVERVIEW

The Low-Income Weatherization Program (LIWP) for multifamily buildings (MF) (the "Program") will offer property owners ("Participants") with approved properties energy efficiency retrofit and weatherization incentives and technical assistance services for energy efficiency (EE), solar water heating (SWH), and solar photovoltaic (PV) upgrades.

1.1. Statement of Purpose

The overall purpose of LIWP-MF is to provide effective energy saving measures including solar water heating and photovoltaic systems to qualifying low-income MF buildings to reduce energy use and Green House Gas (GHG) emissions in targeted "disadvantaged communities" (DACs) as designated by the California Environmental Protection Agency (CalEPA), and properties within ½ mile of a DAC. Waivers may be requested for properties housing farmworkers in other communities.

1.2. Program Goals and Performance Benchmarks

The Program aims to reduce 10,037 $MTCO_2e$ (Metric Ton of Carbon Dioxide equivalent) annually for the life of the measures by providing EE and PV upgrades to approximately 120-200 buildings, totaling an estimated 10,000 dwelling units. Assuming projects with typical EE measure lives between 10 and 20 years (and up to 25 years for PV systems), this equates to between 100,370 to 200,740 MTCO2e in lifecycle savings. Across the whole program portfolio, the aim is to reach an average of 25% energy savings per project receiving EE incentives, and 40% energy savings per project receiving both EE and PV incentives. Energy savings will be calculated and reported in kilowatt hours (kWh) and therms. To determine site energy savings percentage targets, these kWh and therm savings will be converted into British Thermal Unit (BTU) savings relative to a pre-installation baseline BTU consumption. In practice, some properties will obtain higher savings and others lower savings than these BTU percent savings targets.

As the Program is implemented, program goals, targets, and estimates may be revised in collaboration with the Program team based on quarterly results and data. While GHG reduction is the primary goal, the Program also aims to maximize co-benefits to disadvantaged communities, including economic, environmental and public health benefits through reduced energy costs, improved air quality, and job creation. These benchmark targets may be revised in coordination with CSD as the Program is being implemented.

1.3. Program Implementation Parties

The Program will be administered by California Department of Community Services & Development (CSD) and implemented by The Association for Energy Affordability, Inc. (AEA). The full program team, including other supporting organizations, is defined below.

> **California Department of Community Services & Development (CSD)** is a state department under the California Health and Human Services Agency. CSD leads the development and

coordination of effective and innovative programs for low-income residents. CSD approves and oversees LIWP-MF.

Association for Energy Affordability (AEA), also referred to herein as the Technical Assistance Provider, is a not-for-profit technical services and training organization dedicated to achieving energy efficiency in new and existing buildings, offering engineering, auditing, and training solutions. AEA will provide direct program technical assistance, quality assurance, and administrative services as described herein. AEA will be the primary interface with the Program Participants and will report to CSD.

TRC Energy Services is an engineering and environmental consulting management firm. TRC will assist AEA in database management, benchmarking analysis, and other recruitment and technical support components of the Program. TRC was partnered with AEA and listed as a sub-contractor in AEA's initial Request for Qualifications (RFQ) submittal response and will report to AEA.

California Housing Partnership Corporation (CHPC) is a not-for-profit organization dedicated to helping government and nonprofit housing agencies preserve and expand the supply of affordable homes for lower-income households throughout California.
As the leading advocacy organization working on behalf of non-profit affordable housing developers in California, CHPC's main role will be to serve as the LIWP-MF Outreach and Intake specialist.

Specifically, CHPC will develop marketing campaigns and outreach strategies with AEA and TRC and perform customer intake to determine if potential projects are appropriate candidates for LIWP-MF. Additionally, CHPC will provide expertise in the area of affordable housing finance. CHPC will report to AEA.

Stone Energy Associates is a consulting firm that will provide support to AEA on the development and implementation of LIWP-MF. Nehemiah Stone, the company's principal, will lend his expertise in the area of utility allowance adjustments and specifically the use of the California Utility Allowance Calculator to support work scope implementation. He will also help develop the Program's workforce development policies and procedures. Stone Energy Associates was listed as part of the LIWP-MF implementation team in AEA's initial RFQ submittal response and will report to AEA.

GRID Alternatives is a nonprofit organization whose mission is to bring renewable energy technology and job training to low-income communities. GRID Alternatives will assist AEA in assessing solar technical and financial feasibility during the early stages of project development. GRID Alternatives will report to AEA.

1.3.1. Program Implementers' Responsibilities

The Program implementation parties will be responsible for executing the tasks described within this document. Specifically, the Parties' responsibilities within the Program will include, but not be limited to:

- Recruiting Participants (AEA, TRC, & CHPC)
- Enrolling Participants (AEA, TRC, & CHPC)

- Providing program and project technical assistance (AEA, TRC, & Stone Energy)
- Receiving, reviewing, and approving Incentive Reservation and Claim Forms (AEA)
- Conducting quality assurance pre-installation and post-installation site visits (AEA &TRC)
- Processing and sending incentive payments (AEA)
- Providing project PV technical assistance (GRID Alternatives)

1.3.2. Participant Responsibilities

For the purposes of the LIWP-MF, "Program Participant" and "Participant" refer to the property owner or designated owner's representative who is authorized to make decisions affecting the property and sign official program documentation. The Participant's responsibilities within the Program will include, but not be limited to:

- Submitting an Interest Form
- Providing the information necessary to determine program eligibility, including, but not limited to income eligibility documentation and, at minimum, common area energy bills
- Submitting an Intent to Proceed Form (see Appendix 7.3) and accompanying Good Faith Deposit
- Submitting an Energy Efficiency and/or Solar PV Incentive Reservation and Participation Agreement Form/s (see Appendix 7.4 for EE Incentive example and Appendix 7.5 for Solar PV Incentive example)
- Hiring and overseeing qualified contractor(s) to ensure compliant and quality installation within the Incentive Reservation period
- Ensuring compliance with all legal requirements, including, but not limited to obtaining necessary building permits and fulfilling tax obligations
- Submitting documentation of additional leveraged resources, including utility rebates
- Submitting an Energy Efficiency and/or Solar PV Statement of Completion (see Appendix 7.6 and Appendix 7.7)
- Submitting all contractor invoices and supporting documentation such as workforce development forms
- Submitting W-9s for projects receiving LIWP-MF incentives (Note: The program requires the Participant's signed W-9 on file to issue payments and 1099 IRS forms.)
- Submitting any additional documentation required by the Program and as applicable to the project, such as in-house labor costs, material costs, or Affordability Covenants
- Allowing site visits by Program parties during pre-installation, work-in-progress and post-installation verification phases
- Agreeing to the Terms & Conditions (see Appendix 7.9) of each form upon submission.

1.3.3. Contractor(s) Responsibilities

Contractor(s) and subcontractor(s) installing incentivized work must hold and maintain (1) General Liability, Workman's Compensation, and Auto insurance, (2) appropriate contractors' licenses required by the State of California, and (3) business licenses and permits required to work in the local jurisdiction.

For Solar PV contractors, after the completion of the project, Solar PV installation contractors will be required to submit the Workforce Job Training Affidavit (Appendix 7.13) except in cases where a CPUC

approved (Decision 15 01 027) workforce development model will be used to report as an alternate compliance pathway.

Installation contractors will be under contract directly with the Participant and not with AEA or CSD.

For more details regarding contractor requirements see Section 6.

1.4. Program Eligibility

In order to qualify for the Program, projects must meet the following eligibility criteria. A diagram of the eligibility determination process is found in Figure 2.

1.4.1. Term

For program participants, the Program will operate from December 1, 2015 through May 31, 2021 and will be split into four rounds. The project incentive levels will be dependent upon completion and verification dates. For more details outlining incentive levels and program rounds, see section 2: Program Incentives.

Technical assistance will be available to projects that indicate an interest or commitment to complete work within the term.

1.4.2. Geography

The services provided in Rounds 1-3 were performed in the service territory comprised of the DACs determined under CalEnviroScreen (CES) 2.0 by the CalEPA and defined via census tracts. The services provided in Round 4 shall be performed in the service territory comprised of the DACs determined under CES 3.0 by the CalEPA and defined via census tracts and properties within 1/2 mile of any of these DACs. Waivers may be requested for properties housing farmworkers in other communities.

1.4.3. Building Type

After July 1, 2017, multi-family buildings with 5 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 5 or more units, will be eligible to enter into Participation Agreements for funding without authorization by CSD. For projects with multiple residential buildings on site, buildings with less than 5 residential units may participate in the Program if there are buildings with at least 5 or more residential dwelling units on the property. Properties where all buildings contain less than 5 residential units will be subject to review and approval by CSD. Both residential and non-residential spaces that directly serve or are used by the residents, such as laundry facilities, garages, community rooms, and community kitchens are eligible for improvements and incentives under the Program.

1.4.4. Income Eligibility

To qualify for LIWP-MF EE, PV, and SWH services Participants must demonstrate that at least 66% of the dwelling units at a property are occupied by households with incomes at or below 80% of the county's Area Median Income (AMI).

1.4.4.1. Deed Restricted Properties

Deed restricted and/or subsidized properties must provide regulatory agreements with a government agency showing compliance with the income eligibility requirements. If there is less than ten (10) years remaining on the term of this regulatory agreement, the Participant will agree to sign an Affordability Covenant provided by the Program stating that they will continue to meet income eligibility requirements to equal ten (10) total years. These projects will be subject to CSD approval of a waiver application for them to proceed in the pipeline.

If a property has a non-qualifying regulatory agreement, it will not be automatically made ineligible. Rather, the property will be reviewed under the Market Rate Property Policy.

1.4.4.2. Market Rate Property Policy

There are three pathways for demonstrating income eligibility for at least 66% of the units of the property through one or a combination of the following in order from the most preferable to the least:

Option 1: Income Documentation

Provision of pay stubs and/or most recent annual tax returns showing that at least 66% of the households are ≤ 80% AMI.

Option 2: Public Assistance Program Documentation

Provision of documents showing households participate in public assistance programs or receive benefits primarily available to those with income levels ≤ 80% AMI. These benefits include, but are not limited to the following:

<table>
<tr><td rowspan="2">Section 8 Project-Based Rental Assistance Housing Assistance Payment (HAP) Contract or Project-Based Voucher (PBV) Contract
(Note: Only applies if owner is a public housing authority or 501c3 non-profit housing organization)</td><td>Section 8-Housing Choice Voucher Program (HCVP)
(Owner provides list of units that receive a voucher)</td></tr>
<tr><td>Low Income Home Energy Assistance Program (LIHEAP)</td></tr>
<tr><td>Head Start Income Eligible (Tribal Only)</td><td>CalWORKs (TANF) or Tribal TANF</td></tr>
<tr><td>CalFresh/SNAP (Food Stamps)</td><td>Bureau of Indian Affairs General Assistance</td></tr>
<tr><td>Free and Reduced-Price Meals in Child Nutrition Programs</td><td>Medi-Cal for Families (Healthy Families A&B)</td></tr>
</table>

Figure 1 Public Assistance Programs

Option 3: Rent Affordability Standard

In housing serving lower income households, gross rents paid (rent charged plus the utility allowance) cannot exceed 30% of household income for the housing to be deemed affordable. In lieu of demonstrating income eligibility using Option 1 or 2 above, a property may choose to proceed with the Rent Affordability Standard Pathway.

Properties choosing to use the Rent Affordability Standard to confirm income eligibly must follow and agree to the procedures below upon executing an Incentive Reservation and Participation Agreement.

Rent Affordability Standard Procedures:

1. Identify AMI for the property as determined by the U.S Department of Housing and Urban Development (HUD) published AMI levels for the County. The number of persons in each apartment will be determined by using the following Household Occupancy Criteria to determine AMI level based on dwelling unit type:

   Studio – 1 person; 1 Bedroom – 2 persons; 2 Bedroom – 3 persons; 3 Bedroom – 4 persons

2. Identify (Public Housing Agency) PHA schedules for the county in which the property is located to determine applicable utility allowances.

3. Identify Rent Affordability Standard, which is the monthly affordable rent for a household with an income at 80% of the AMI. The formula for this calculation is:

$$\text{Rent must be} \leq \left[\frac{[80\% \text{ of AMI}] \times 30\%}{12} - Montly\ Utility\ Allowance \right]$$

4. The program will evaluate the rent levels of each unit type in the candidate property against the Rent Affordability Standard. The property will be eligible for the program only if at least 66% of the units therein have rent levels less than or equal to the Rent Affordability Standard and the owner agrees to maintain this standard for the term of the agreement.

Rent Affordability Standard Requirements:

The Participant must submit documentation to support project eligibility. This documentation includes:

1. A list of rental units by unit type and the maximum rent level set for each unit type on the property
2. A certification by the Participant that the reported rent levels are accurate. Owner signature to this document confirms that the reported rent levels that were provided, and are affixed to this document, are accurate.

Participant signature to this covenant serves as agreement that the property will ensure that rent levels in at least 66% of units will remain at or below the rent affordability standard for at least ten (10) years and that notification will be provided to tenants of the property's participation in LIWP-MF no less than 30 calendar days prior to the start of construction. The calculation of future years' Rent Affordability Standard will be based on the AMI for that year as set by HUD. The income limits are based on the county's median income, which is calculated using data from the U.S. Census Bureau's American Community Survey.

Option 4: Office of Migrant Services (OMS) Migrant Centers

Provision of document showing property is an active OMS Migrant Center and households participate in affordable seasonal rental housing for migrant farmworker families primarily available to those with income levels less than 80% AMI. Participants must notify the LIWP Service Provider and CSD no less than 30 calendar days prior to changes to the property occupancy and affordability requirements.

1.4.4.3. Additional Requirements

Requirement 1. Affordability Requirements for All Properties

1. The participant agrees not to evict or commence any eviction proceeding against any tenant(s) of any qualifying dwelling unit in the building, except for cause and subject to all legal requirements and procedures for any such eviction and/or proceeding. This restriction is in force for a period of not less than ten years. This period commences on the date provided by the date the Incentive Reservation Participating Agreement (IRPA) is executed.

2. For qualifying dwelling units subject to statutorily authorized rent control or rent stabilization, this agreement does not prohibit the owner from receiving approval for standard, periodic, incremental rent increases granted by the local rent control guidelines board.

3. The Participant agrees that the rents for the qualified low-income dwelling units shall not be increased because of the solar and/or energy efficiency upgrades and major capital improvements included as part of the LIWP Incentive Reservation and Participation Agreement.

4. For properties using Options 1-2, the owner agrees that any dwelling units which are designated as vacant as of the effective date of the Incentive Reservation and Participation Agreement, shall be rented to or occupied by a household at an income level such that at least 66% of households residing at the property earn less than 80% AMI. Properties with an existing regulatory agreement that already meets the rent and occupancy requirements at IRPA will be considered to be in compliance as long as property is in compliance with the regulatory agreement. For properties using Option 3, the owner agrees that any dwelling units which are designated as vacant as of the effective date of the Incentive Reservation and Participation Agreement (IRPA) shall be rented at a price such that at least 66% of the property's units will be rented at or below the Rent Affordability Standard.

Requirement 2. Affordability Requirements for Properties with Less Than 10 Years Remaining On Regulatory Agreement

In instances where property has less than 10 years remaining on the regulatory agreement, in order to receive LIWP incentives, the owner agrees to extend the affordability at the property such that 66% of households are ≤ 80% AMI for a total period of 10 years. Owner signature on this document confirms agreement that the property will provide at least this minimum level of affordability after expiration of the regulatory agreement.

Requirement 3. Affordability Requirements for Properties with Project-Based Rental Assistance Housing Assistance Payment (HAP) Contract or Project-Based Voucher (PBV) Contract Lasting Less than 10 Years

Participants that income-qualify any units under Option 2 (Public Assistance Program Documentation) using a HAP or PBV contract must notify the LIWP Service Provider no less than 30 calendar days prior to the expiration of the HAP contract or from formal notice to HUD or the public housing authority of owner's decision to opt out of contract renewal. At such point the Participant must adhere to the conditions listed in Requirement 1.

Requirement 4. Affordability Covenant

The Participant will endeavor to maintain affordability of the property's rental units for a period of 10 years as a condition of receiving property improvement funds as part of the Low-Income Weatherization Program. The ability to access future funding from CSD will be evaluated based on the Participant's

adherence to the Rent Affordability Standards as outlined in Option 3: Rent Affordability Standards Requirements above.

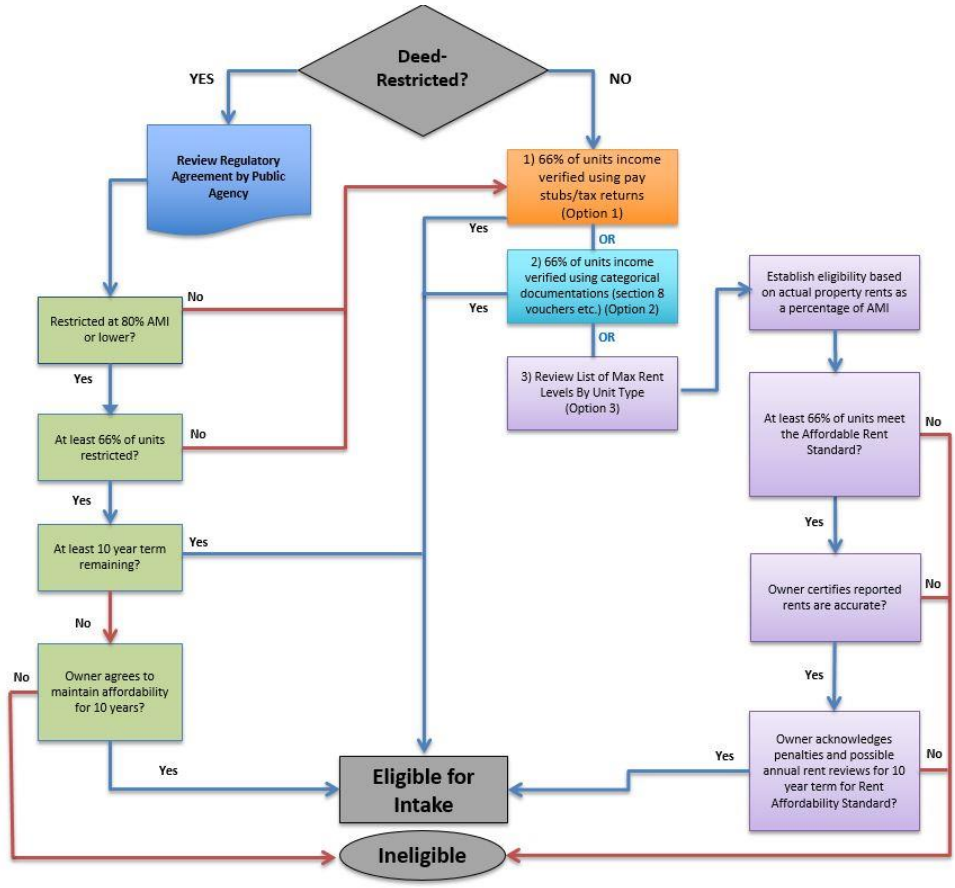


Figure 2 Affordability Eligibility Flowchart

1.4.5. Building Safety & Project Deferrals

Projects that show signs of significant health and safety issues, such as structural integrity problems identified by the Technical Analyst, will be subject to disqualification from the Program unless the Participant addresses the issues in a timely fashion.

The decision to defer work at a project is difficult but necessary in some cases. Deferral does not mean that the project will be ineligible for the program permanently, but that work must be postponed indefinitely until the problems can be resolved. The Technical Analyst is expected to pursue all reasonable options on behalf of the Participant.

Deferral Examples may include:

- The resident(s) have known health conditions that prohibit the installation of insulation and/or other weatherization materials.
- A building's structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that they cannot be repaired reasonably.

- A building, property or unit(s) has sewage or other sanitary problems that would further endanger the client and weatherization installers if weatherization work is performed and repair is beyond the scope of reasonable cost justification.
- A building, property or unit(s) has been condemned or electrical, heating, plumbing, or other equipment has been "red tagged" by local or state building officials or utilities.
- Moisture problems are so severe that they cannot be resolved.
- Dangerous conditions exist due to high carbon monoxide levels due to combustion appliances and cannot be reasonably resolved.
- The resident(s) are uncooperative, abusive, or threatening to the crew, subcontractors, auditors, inspectors, or others who must work on or visit the building or property.
- The extent and condition of lead-based paint at the property is such that, if disturbed, it would potentially create further health and safety hazards.
- Illegal activities are being conducted in any dwelling units.

1.4.6. Service Cap

Projects will be ineligible if the Participant has 1000 units or ten projects that are already participating in the Program. However, this restriction may be lifted at the discretion of CSD and AEA, pending the availability of funding.

1.4.7. Minimum Project Energy Savings Thresholds

Projects must meet a minimum of 15% energy savings relative to the existing conditions in order to be eligible for the EE incentives and PV incentives. Projects that are receiving funds from other energy efficiency programs, such as Investor Owned Utility, Regional Energy Network, and Community Choice Aggregator comprehensive whole building rebate programs, or those receiving Low Income Housing Tax Credits (LIHTC) through the California Tax Credit Allocation Committee (TCAC), must achieve a minimum of 25% energy savings based on EE measures alone, except as noted in Section 1.4.9 below. Waivers to this requirement are subject to CSD's discretion. Note that SWH is categorized as an energy efficiency measure in LIWP-MF.

1.4.8. Prorated Savings Requirement for Smaller Leveraged Fund Amounts

It is recognized that some programs being leveraged with LIWP will have a significantly higher rebates than others. If Participants would like to leverage funds from programs with rebate amounts that are lower than the whole building Energy Upgrade California (EUC) programs, but they are unable to reach the 25% savings level required to leverage EUC, the percent savings requirements may be adjusted based on the table below. The percent savings requirements in the table are based on the level of contribution of those funds towards the project (normalized as "per apartment equivalent"). The use of "per apartment equivalent" takes into account a rebate that is for a common area system, such as common area lighting, but allows us to compare it to the whole building program rebate structure.

Leverage Amount (Per Apt Equivalent)	% Savings Requirement
>$500 (includes LIHTC and 45L Tax Credit)	25.0%
$250-$499	22.0%
$100-$249	19.0%
$50-$99	17.0%
<$50	15.0%

Figure 3 Prorated Savings Requirement for Smaller Leveraged Fund Amounts

For example, a 100-unit property is leveraging a common area lighting program where the property will receive a rebate amount of $25,000 for common area LED lighting installations. The Program will divide the total leveraged rebate by the number of units to obtain the per apartment equivalent. Therefore, this project will need to meet 22% savings requirement because it falls under the $250-$500 category.

$$\frac{\$25{,}000\ Lighting\ Upgrade\ Rebate}{100\ Units} = \$250 \text{ per Apt}$$

1.5. Participant's Financial Obligations

1.5.1. Good Faith Deposit

In order to enroll a project in the Program, the Participant will submit a Good Faith deposit along with their Intent to Proceed Form (Appendix 10.3). This payment will only be required after an initial in-take call and desktop analysis confirm that the project is a good candidate and the Participant has the interest and ability to undertake the potential work scope; the payment must be submitted prior to the Technical Analyst's Pre-Installation Site Visit. The purpose of this deposit will be for the Participant to demonstrate that they are earnest about proceeding with the Program and will be returned in full with the incentive upon project completion; the deposit will not accumulate any interest. If the Participant decides to not move forward with the project after submission of the Intent to Proceed Form, the deposit will not be returned. The deposit amount will be based on number of units at the property. Any forfeited deposits will be reserved as additional incentive funds, with unspent funds returned to CSD at contract close-out.

Unit Size	Deposit Amount
< 50 Units	$1000
50-100 Units	$1500
>100 Units	$2000

Table 1 Good Faith Deposit Amounts

1.5.2. Non-LIWP Leveraged Funds

Projects are encouraged to leverage non-LIWP funds, such as Investor Owned Utility, Regional Energy Network, and Community Choice Aggregator comprehensive whole building rebate programs, Low Income Housing Tax Credits (LIHTC), and other available local, state and federally funded programs. However, to ensure that LIWP incentives would not be greater than project costs, projects will be required to provide final project cost documentation, as well as documentation of other leveraged resources. LIWP Incentives will be reduced accordingly (or work scope can be increased) if the program determines the LIWP incentive and leveraged funds exceeds final project cost.

1.5.2.1. Financial Documentation

The cost of the EE and PV scopes of work and sources of funding for the projects will be listed in the Incentive Reservation and Participation Agreement form to be signed by the Participant. The sources of funding will include the LIWP-MF incentives; third party leveraged funds or incentives, and Participant direct cash co-investment. At project close-out the Participant will be responsible for providing documentation for all leveraged funds/incentives, and any direct Participant cash investment. The Program may ask for additional documentation as needed and can withhold the LIWP-MF incentive until all required documentation is received and approved.

Records of each of these sources of funding and their associated documentation will be maintained by AEA and reported to CSD via energyOrbit (eO).

1.6. General Terms and Conditions

The Participant will be required to acknowledge their acceptance of the Terms and Conditions (T&C) at each phase of the Participant submission: Intent to Proceed Form, Affordability Covenant, Energy Efficiency Incentive Reservation and Participation Agreement Form, PV Incentive Reservation and Participation Agreement Form and Statement of Completion . The T&C's will be attached to each of these forms and are included in Appendix 10.9.

2. PROGRAM INCENTIVES

The EE and PV incentive structures are designed to promote deep GHG reductions across all projects. The incentives will be available on a first-come-first-served basis. Funds may become unavailable without notice. The incentives may only be claimed upon the completion of the Approved Scope and payable upon successful final post-installation quality assurance inspection. PV and EE incentives may be issued separately if projects are completed at different times.

2.1. Energy Efficiency Incentive Structure

The Energy Efficiency (EE) incentive will be based on the Metric Ton (MT) of CO2e (GHG) saved from the scope of work, the construction completion date, and the entity receiving the utility bill reductions as outlined below.

ROUND CLOSED - Round 1 projects completed construction by April 30, 2017. Round 1 incentive levels were $4,000/MTCO2e for energy efficiency measures that reduce owner paid energy, and $5,000/MTCO2e for energy efficiency measures that reduce tenant paid energy.

ROUND CLOSED - Round 2 projects completed construction by February 28, 2018. Round 2 incentive levels were $3,500/MTCO2e for energy efficiency measures that reduce owner paid energy, and $4,500/MTCO2e for energy efficiency measures that reduce tenant paid energy.

Projects in Round 3 must target construction completion on or before February 28, 2020 in order to provide sufficient time for program representatives to schedule and perform the required post-installation site inspections and to provide participants sufficient time to complete all documentation requirements by April 30, 2020.

Projects in Round 4 must target construction completion on or before February 28, 2021 in order to provide sufficient time for program representatives to schedule and perform the required post-installation site inspections and to provide participants sufficient time to complete all documentation requirements by April 30, 2021.

Incentive levels for Rounds 3 through 4 are $3,000/MTCO2e for energy efficiency measures that reduce owner paid energy, and $4,500/MTCO2e for energy efficiency measures that reduce tenant paid energy. Funding available for Round 3 and 4 projects is limited and will be reserved on a first-come-first-served basis. A proportion of the Round 4 funding will be set aside specifically for farmworker housing and properties within 1/2 mile of a disadvantaged community (CES 3.0).

Note that SWH is categorized as an energy efficiency measure in LIWP-MF. Solar PV is separately incentivized in the Program.

2.1.1. Incentive Criteria

2.1.1.1. LIWP-MF Multifamily Technical Assistance

In order to qualify for incentives, the Participant must have received LIWP-MF technical assistance and an associated LIWP-MF incentive package with an Approved Scope of Eligible Measures.

2.1.1.2. Energy Savings

The projected energy savings for the Approved Scope must be at least 15% of whole building energy usage. All EE measures that contribute to the minimum 15% savings target calculated with one of the methods described in Section 4.3 are eligible to be included in the approved scope.

2.1.1.3. Project Cost

The LIWP-MF incentives, in combination with any other leveraged incentives, may not exceed the measure installation costs. Projects will be required to submit cost documentation for all installed measures. Project costs include, but are not limited to the following and must be appropriately documented and submitted to AEA:

- Material costs directly incurred by Participant – receipts of purchase
- Installation labor costs and material costs indirectly incurred through contractors – paid invoices or receipts from contractors
- In-house labor for installation – documentation showing labor hours and rates

2.1.1.4. Procurement

To avoid excessively high costs, AEA may review bids from all contractors performing work under the program. For projects reserving program funding after June 30, 2017, if total costs for performing the LIWP work scope are estimated to fall within 10% of estimated LIWP incentives, LIWP requires participants to submit documentation that at least 2 bids were received on the 3 highest cost measures to show cost justification and reasonableness.

2.1.1.5. Minimum Installed Measures

All LIWP-MF program participants reserving program funding after June 1, 2017 must install the following in-unit measures as part of the scope of work to meet minimum program requirements. If the residences already comply with the specifications listed below or the measures are not applicable, no additional work is required.

- Low flow kitchen aerators (less than or equal to 1.8 gpm at 60 psi)
- Low flow bathroom aerators (less than or equal to 1.2 gpm at 60 psi)
- Low flow showerheads (less than or equal to 1.8 gpm at 80 psi)
- Replace all incandescent and halogen bulbs with LED equivalent
- Replace any refrigerator that was manufactured on or before 2001 and is rated for 750 kWh annual consumption or more
- Duct sealing:
    - Where ducts or plenums are accessible, seal seams and connections with mastic
    - Seal supply boots to drywall with caulk

2.2. Solar PV Incentive Structure

The PV incentive will vary based on the amount of leveraged funding sources and if the PV system is offsetting owner meter consumption (common area and master meters) or tenant meter consumption (direct metered electric). PV incentives will only be available for projects that are also pursuing energy efficiency (EE) retrofits that achieve at least 15% modeled EE savings over existing conditions. If a project is interested in solar PV but is unable to meet the 15% EE threshold, the project must submit a waiver

request to AEA requesting to be approved to proceed with a lower percent saving EE scope. If this waiver request is conditionally approved by AEA, AEA will submit to CSD for final waiver approval.

Projects receiving MASH, LIHTC and ITC are expected not to need additional LIWP PV funding, as the combination of those existing funding sources should be adequate to pay for PV systems. All for-profit ownership structures, and those receiving a PPA financed PV system, will receive incentive rates assuming ITC will be taken. LIHTC projects will receive incentive rates assuming both the ITC and LIHTC will be taken for the PV system. Those projects unable to pursue ITC and/or LIHTC may submit justification documentation to their LIWP Technical Analyst for review and approval to waive this requirement. For projects that do not fall into the leveraging scenarios listed below, AEA will work with the Participant to calculate the PV incentive amount based on that project's specific financing scenario. Note that projects must meet the 90% Solar Design Factor requirement, as described in Section 2.2.2, to receive the full incentive amounts.

The following are the LIWP-MF PV incentive amounts for properties that completed their PV installation by February 28, 2018:

COMMON LEVERAGE TYPES[1]			LIWP INCENTIVE $/W-DC	
Federal Investment Tax Credit (ITC)	4% LIHTC	MASH	**Owner Meter PV Systems** <100kW* (Common Area or Master Meter)	**Tenant Meter PV Systems** <100kW*
Yes	Yes	No	0.50	1.50
Yes	No	No	1.00	2.40
Yes	No	Yes	0.00	1.00
No	No	No	1.50	3.50
No	No	Yes	0.80	1.70
No	Yes	No	1.00	2.40
No	Yes	Yes	0.00	0.90
Yes	Yes	Yes	0.00	0.00

Figure 4 Solar PV Incentives for properties completing installation by February 28, 2018

1. For projects that do not fall into these common leveraging scenarios, contact AEA to identify your LIWP PV incentive amount.
**For systems >100kW, the per W incentives will be stepped down based on system size (see below)*

The following are the LIWP-MF PV incentive amounts for properties that completed their PV installation after February 28, 2018 and/or reserved their LIWP PV incentive after April 30, 2017:

LIWP PV Incentive Structure					
Leverage Types			LIWP Incentive $/W-DC		
ITC	LIHTC *(4% only, 9% contact AEA)*	MASH*	Owner Meter PV Systems	Tenant Meter PV Systems	
				VNM	Direct Meter
Yes	Yes	No	0.5	1.5	1.8
Yes	No	No	1	2.1	2.4
Yes	No	Yes	0	0.5	0.8
No	No	No	1.3	3	3.3
No	No	Yes	0.6	1.4	1.7
No	Yes	No	1	2.4	2.7
No	Yes	Yes	0	0.9	1.2
Yes	Yes	Yes	0	0	0

Figure 5 Solar PV Incentives for properties completing installation after February 28, 2018

**Properties in publicly owned utility jurisdictions with utility PV rebates that are readily available at time of reservation will be assumed to be utilizing those rebates and have their LIWP incentives adjusted accordingly by AEA.*
**For systems >100kW, the per W incentives will be stepped down based on system size (see below)*

2.2.1. Incentive Criteria

2.2.1.1. Leveraged Funds

The LIWP PV incentive is based on the types of leveraged funds contributing to the whole cost of the solar PV system. The more leveraged funds that are provided to the PV project, the less LIWP-MF funds will be needed. The three most common sources of leveraged funding are 4% Low Income Housing Tax Credit (LIHTC), solar Investment Tax Credit (ITC), and Multifamily Affordable Solar Housing (MASH). Projects outside of IOU territory and thus ineligible for MASH, but receiving publicly owned utility (POU) incentives, will be evaluated on a case-by-case basis to prevent over-subsidization.

As stated above, projects receiving MASH, LIHTC *and* ITC are expected not to need additional LIWP PV funding, as the combination of those existing funding sources should be adequate to pay for PV systems. Similarly, 9% LIHTC projects which include the PV system costs as part of their eligible basis are not eligible for PV incentives for owner meter PV systems due to the large percent of costs covered by tax credit equity in that program. Nine percent LIHTC projects may be eligible for LIWP PV incentives for tenant meter PV systems depending on whether there are other leveraged funds.

Projects that do not include the PV system costs as part of the LIHTC eligible basis, and are thus not receiving tax credit equity based on the cost of that PV system, are considered not to be leveraging LIHTC funds for the PV system, and can be marked as "N" on the incentive table above.

For projects that do not fall into the leveraging scenarios listed above, such as those including the PV system in their LIHTC eligible basis but not pursuing the ITC, the Participant should contact AEA to identify the LIWP PV incentive amount.

PV projects receiving LIWP incentives for tenant PV systems must allocate 100% of the benefit of that tenant PV system's generation to the residents. This means that projects that would like to receive LIWP incentives for the tenant PV systems will be unable to pursue a utility allowance adjustment (including projects that receive MASH rebates).

2.2.1.2. System Offsets and Incentive Calculation

PV systems offsetting owner meter consumption and/or offsetting tenant meter consumption are eligible for incentives. This includes PV systems dedicated solely to those meters and PV systems that have the overall system generation distributed to various owner and/or tenant meters via a billing and metering structure such as Virtual Net Metering (VNM). For combined systems with the generation allocated to individual meters, the incentive is based on the allocated percentage of generation. For example, if a 100kW system allocated 60% of generation to owner meters and allocated 40% of generation to tenant meters, then 60kW of the system would receive the owner meter incentive amount and 40kW of the system would receive the tenant meter incentive amount, based on the LIWP PV incentive table above.

2.2.1.3. System Size Incentive Adjustments

For incentivized systems larger than 100kW, a bracket system with incentive adjustment factors will be implemented to account for larger systems that will have improved economies of scale. The table below details these incentive adjustment factors.

kW-DC	INCENTIVE ADJUSTMENT FACTOR
≤100	100%
101-300	80%
301-500	60%
≥501	40%

Figure 6 System Size Incentive Adjustments

In this table, the first 100kW of the PV system is eligible for the full incentive amount that was identified in Figure 4. The next 200kW of the PV system is eligible for 80% of the incentive rate, etc. For example, a tenant based VNM PV system that is leveraging ITC and MASH would be eligible for a base incentive of $1.00/W, as identified in the LIWP PV incentive table.

Assuming that the total tenant based VNM PV system is 545kW, the incentive would be calculated as such:

100 kW x 1.00W = $100,000
+ 200kw x ($1.00/W*.8) = $160,000
+ 200kw x ($1.00/W*.6) = $120,000
+ 45kw x ($1.00/W*.4) = $18,000
Total LIWP Incentive = $398,000

2.2.2. PV System Design Factor Requirements

Proposed system designs will be evaluated against the optimal design conditions for the project location. All projects must submit a PVWatts report for each system array that reflects the location, tilt, azimuth and annual shading conditions for their proposed design. All projects must also submit a PVWatts report for their system showing the optimal design conditions for their system as follows:

- Array tilt = Project Location Latitude
- Azimuth = 180
- Shading = PVWatts Default Value (3%) for optimal design condition calculation. Actual shading values must be used for installed systems.
- Inverter Efficiency = PV Watts Default Value (96%) for optimal design condition calculation. Actual CEC Weighted Efficiency must be used for installed systems.

The following PVWatts default system losses will be used for remaining values:

Soiling (%):	2
Shading (%):	see above
Snow (%):	0
Mismatch (%):	2
Wiring (%):	2
Connections (%):	0.5
Light-Induced Degradation (%):	1.5
Nameplate Rating (%):	1
Age (%):	0
Availability (%):	3

*For systems utilizing DC Optimizers or Microinverters, a mismatch value of zero may be used to calculate the actual production.

The Solar Design Factor will be calculated using the following formula:

$$LIWP\ Solar\ Design\ Factor = \frac{Calculated\ kWh\ Production\ from\ Actual\ Design\ PVWatts\ Report}{Calculated\ kWh\ Production\ from\ Optimal\ Design\ PVWatts\ Report}$$

Systems with a Solar Design Factor of ≥ 0.90 will receive the full incentive payment. The incentive amount for projects with a Solar Design Factor of <.90 will be reduced by multiplying the calculated incentive amount from Section 2.2 of the LIWP Service Delivery Plan by the Solar Design Factor. For example, a project with a Solar Design Factor of 0.85 will receive 85% of the maximum potential incentive amount.

2.2.3. Financing and Direct Participant Purchase Models

Participants may have their PV systems (or the SWH system categorized under the EE portion of the work scope) installed, operated, and maintained via two alternative pathways:

1) **Property Solar Ownership Model**: In the Property Ownership arrangement, the property owner purchases the system from a Solar PV Provider, who subsequently provides a maintenance contract and performance warranty for a set number of years. In this case, the Participant must enter into a signed operation, maintenance, and monitoring contract for the PV and/or thermal system for a minimum period of 10 years. Documentation of this contract must be provided at project completion and must include the criteria outlined in Section 2.2.4.

2) **Third Party Ownership Model (Power Purchase Agreement, Solar Lease)**:
    a. Power Purchase Agreement (PPA) Model: In a PPA model, a Solar PV Provider builds the PV system on a customer's property at low to no upfront cost. The PV system offsets the customer's electric utility bill, and the developer sells the power generated to the customer at a fixed rate, typically lower than the local utility. The customer also has the option to prepay a portion or all of the anticipated PPA costs. At the end of the PPA contract term, Participants can extend the contract or buy the solar energy system from the Solar PV Provider.
    b. Solar Lease Model: In the Solar Lease Model, a customer will sign a contract with a Solar PV Provider and pay for the solar energy system over a period of years, as opposed to paying for the power produced. Solar leases can be structured so customers pay no up-front costs, some of the system cost, or purchase the system before the end of the lease term.

2.2.4. LIWP Solar PV Warranty and Performance Requirements

To ensure long-term performance of LIWP funded PV systems, the LIWP Program requires that all solar energy systems have a warranty of no less than 10 years to protect against defects and undue degradation of electrical generation output. This warranty must include the following:

- All photovoltaic modules and inverters must appear on the CEC SB1 list of approved equipment.
- All solar energy equipment for electricity generation (PV modules, inverters, solar collectors, tracking mechanisms, heat exchangers, pumps, and heat-driven cooling systems) shall have a minimum ten-year manufacturer performance warranty to protect against degradation of electrical generation output of more than 15% from their originally rated electrical output.
- All contractors shall provide a minimum ten-year warranty to provide for no-cost repair and replacement of the system for any expenses not otherwise covered by the manufacturer.

- All contractors shall provide a minimum ten-year warranty to protect the system owner against degradation of electrical generation output greater than 15% that may occur due to faulty installation.
- Meters must have a one-year warranty to ensure against defective workmanship, system or component breakdown, or degradation in electrical output of more than 15% from their originally rated electrical output during the warranty period. For meters that are integrated into the inverter, the meter warranty period must be 10 years.
- For all tenant offsetting PV systems, including VNEM applications with tenant meter allocations, the LIWP Program requires an extended twenty-year inverter material warranty, which will provide insurance against inverter malfunctioning for twenty years and guarantee inverter equipment replacement (material only) after the initial ten-year equipment warranty expires.

2.2.5. Operations and Maintenance Requirement

For all LIWP incentivized PV and solar thermal systems, Participants shall provide documentation indicating a minimum 10-year operations and maintenance service contract to monitor and maintain the system for expected performance and energy savings. All LIWP funded PV systems must be connected to a third party monitoring platform. The owner must agree to share this data with LIWP and Wegowise to track energy production.

2.2.6. LIWP Solar PV Contractor Procurement

Participants will have the option to choose any solar installer.

All projects reserving program funding after April 30, 2017 must solicit at least two proposals from solar PV installers or providers.

2.2.7. Installation Completion requirements

2.2.7.1. Milestones and Completion Dates

Once awarded a reservation for the PV Incentives, projects are required to meet the milestones and completion dates as identified in the Incentive Reservation and Participation Agreement form. For projects submitted for incentives after September 30th, 2017, the installation of the PV system will be considered complete and ready for LIWP verification and incentive processing after the local permitting agency has completed their site inspection, provided their final approval, and the permission to operate letter has been received from the utility.

2.2.7.2. Required Documentation

After reservation but prior to construction, the property owner must submit the following documents to their Technical Analyst.

- Draft or fully executed Third Party Ownership Documents (e.g. PPA, solar lease), when applicable, or Installation Contract for Property Owned Systems

- Equipment Cut Sheets for inverters and modules (please note: all equipment must be new and on the California Energy Commission approved list[1])
- PVWatts Comma Separated Values Output files for both Optimal and Actual Designs
- Project Plans (as submitted to the building department)
- Bid Documents (participants are required to procure at least 2 competitive bids (see Section 8 of Terms and Conditions for more details))

Upon installation completion the participant must initiate the incentive request process by submitting all relevant documentation to LIWP, as listed below.

- LIWP PV Statement of Completion Form
- LIWP PV Field Inspection Worksheet and As-Built Actual Design/Optimal PVWatts Calculation (including actual shading values)
- Project Cost Affidavit and Supporting Documents (i.e. invoices)
- LIWP PV Workforce Training Requirements Affidavit
- Property owner W-9 form
- PV Warranty and Performance Affidavit
- Documentation of all leveraged funding (MASH, ITC, LIHTC, other utility rebate documentation)
- VNEM Allocation Sheet (if applicable)
- Permission to Operate letter evidencing system interconnection
- Final Permits
- Final Project Plans including site map
- Access to third party monitoring platform data
- Executed Third Party Ownership Documents (if applicable)

AEA will review this documentation to ensure that the total combined incentives received from LIWP and other funding sources do not exceed the total project cost and reduce LIWP incentives accordingly. Upon successful review, AEA or a designated third-party inspector may schedule a site visit to confirm that the installed system matches the information above. Following the site visit, AEA will account for any modifications to the approved system, and adjust the incentive accordingly. AEA will notify the property owner upon successful completion of post-installation verification, prior to issuing the incentive.

2.3. Leveraging Other Programs and Referrals

LIWP-MF aims to leverage other rebate, incentive, and financing programs as much as possible to achieve deep GHG reductions.

AEA will reference the Program Referral Table (Appendix 10.16) which contains all available program funding sources and pertinent contact information. These include programs offered by PG&E, Southern California Edison, Southern California Gas, San Diego Gas and Electric, Regional Energy Networks, Community Choice Aggregations (CCAs), Energy Watch partnerships, municipal utilities, low income housing tax credits, federal investment tax credits, water utilities, local governments, non-profits, and

[1] Energy Commission's Solar Equipment Lists: https://www.gosolarcalifornia.ca.gov/equipment/

others. The list is regularly updated as new programs and program details become available. The information will be maintained in consultation with each program administrating entity.

Based on the information gathered, AEA will consult the Program referral criteria to evaluate the appropriateness of each program to the LIWP-MF project. If further information and measure potential evaluation is required to make this determination, AEA may continue with the next steps of technical assistance before providing a program referral recommendation. AEA will provide a standard project submittal package to the leveraging programs' administrators for them to use to qualify the project for their respective programs. Processes and modifications needed to those submittals in order to be in compliance with those programs' requirements will be handled on a case-by-case basis with the leveraging program's administrator. It is not the intent of the LIWP-MF program to use LIWP-MF funding to make any significant modifications to those submittal packages. If significant modifications to the submittal package are requested by those program administrators, the associated costs of those changes become the responsibility of the leveraging program.

If a project enters LIWP-MF after having already received some form of technical assistance through a leveraged program, AEA will receive a submittal package from the other program that will include the energy audit and analysis. AEA will use this submittal package to qualify the project for the Program. AEA maintains the rights to review, modify, or request modifications to that submittal package as necessary. When those modifications are unable to be performed by the leveraging program, AEA will make any modifications necessary to make those projects compliant with the LIWP-MF policies and procedures and the associated costs will be incurred by LIWP as part of the technical consultation budget.

When a project owner expresses interest in LIWP-MF, but the project is determined not to qualify for or be a good fit for the Program for any reason, AEA will identify any appropriate program(s) for the project to be referred to. In such instances that other appropriate programs are identified, AEA will communicate (in email or via phone call) to the property owner by outlining the following:

- Name(s) and description(s) of program(s)
- Explanation of what makes the Participant's project a good fit for each program or combination of programs
- Measures suitable for each program
- Next steps for participation in each program, including contact information, application process, and program requirements

2.3.1. Low Income Housing Tax Credit Projects

Existing affordable multifamily rental properties undertaking substantial rehabilitation funded with Low Income Housing Tax Credits (LIHTC) are eligible to apply for LIWP-MF incentives.

2.3.2 Energy Savings Assistance (ESA) Program

Properties in IOU territories that qualify for the ESA Program may be eligible to co-leverage funding for eligible measures from ESA through a direct partnership between ESA and LIWP. In order to co-leverage funding with ESA, the property must meet additional criteria including income qualification and ESA-specific installation, warranty, and inspection criteria. During scope development, AEA can provide more information regarding ESA co-leveraging opportunities and requirements.

2.4. Incentive Expiration

The incentives will be reserved for between 6 to 18 months, depending on the breadth and complexity of the approved scope. The reservation expiration will be negotiated with the Participant based on the project specific details, but in all cases must be completed and verified by April 30, 2021. The Incentive Reservation and Participation Agreement Forms will also include a date approximately halfway through the reservation period by when significant progress on the project must be demonstrated, including, but not limited to partial completion, ongoing installation and/or documented purchase of major equipment. AEA will schedule a 50% completion site inspection to verify progress unless such an inspection is determined to be unnecessary by program staff. Should the project not meet the expected level of progress at that time, the incentive reservation may be cancelled.

For projects where the completion of the PV phase of the project is completed significantly sooner than the EE phase of the project, the Participant may seek a waiver from CSD to request approval to receive LIWP-MF PV incentives before the EE scope has commenced. For projects that complete the PV phase while their energy efficiency scope is underway, a waiver will not be required. Participants that do not complete the EE portion of the work in such an instance are barred from future participation in the Program.

Projects that will require more than nine months of construction may be phased to the extent possible. For projects that cannot be phased and require a longer construction timeline, such as LIHTC rehabilitations through TCAC, AEA will provide a waiver of the construction timeline requirements, as long as construction is still completed by the Program deadlines.

Projects that need to phase the EE scope of the work will be able to proceed with a phased incentive structure as agreed upon by the Participant and the Program at the time of the Incentive Reservation and Participation Agreement Form. Phased incentives will be paid after the installation of the agreed upon subset of phased measures. The program will withhold a retainer equal to 20% of the total expected incentive amount from projects receiving phased payments. The first phased payment will equal the earned LIWP incentives for each completed measure minus the retainer. Phased payments will never be greater than the total installation costs for the measures installed to date. Retainers will be paid to Participants with the final phase payment. The agreed-upon phased incentive structure and target dates for each phase will be included as an addendum to the Incentive Reservation and Participation Agreement Form. The verification and documentation requirements for each phase will be the same as those required at project completion, including but not limited to W-9 with taxpayer ID, permits required for the installed measures, contactor invoices and receipts, and all mandated workforce development forms. Additionally, documentation must be provided confirming signed contracts with installation contractors for all remaining phased measures yet to be installed. Projects that do not complete the remainder of the scope of work without a Program approved justification shall result in the Participant being barred from future participation in all CSD funded programs. This future program prohibition will be applied to all properties owned or operated by the Participant.

The incentives will be reserved on a first-come-first-served basis with agreed upon completion times. When sufficient interested projects are identified to be program eligible, AEA may choose to prioritize projects based on the intensity of existing building energy use and the associated potential for energy and GHG savings, project construction timelines, and overall project feasibility, including construction and financing details. Funds may become unavailable without notice. It is the intent of the Program to

honor incentives for any project that signs an Incentive Reservation and Participation Agreement form and is in compliance with all other program requirements.

3. PARTICIPATION PROCESS

This section describes the overall program participation process. It refers to requirements and procedures detailed in other sections.

3.1. Participation Forms

The Program will utilize standardized forms and customizable templates to streamline and track its process. The following forms will be used throughout the course of the Program.

Participant Forms

- Interest Form (Online Only)
- Intent to Proceed Form
- PV and EE Incentive Reservation and Participation Agreement Forms
- Statement of Completion

Technical Assistance Forms

- Preliminary Scope - Recommended Upgrades Table
- Approved Scope of Work - Approved Measures Table

Quality Assurance Forms

- Pre-Installation Minimum Performance Requirements (if applicable)
- 50% Construction Verification Memo (if applicable)
- Final Verification Report and Incentive Summary
- Combustion Safety Testing Form (if applicable)

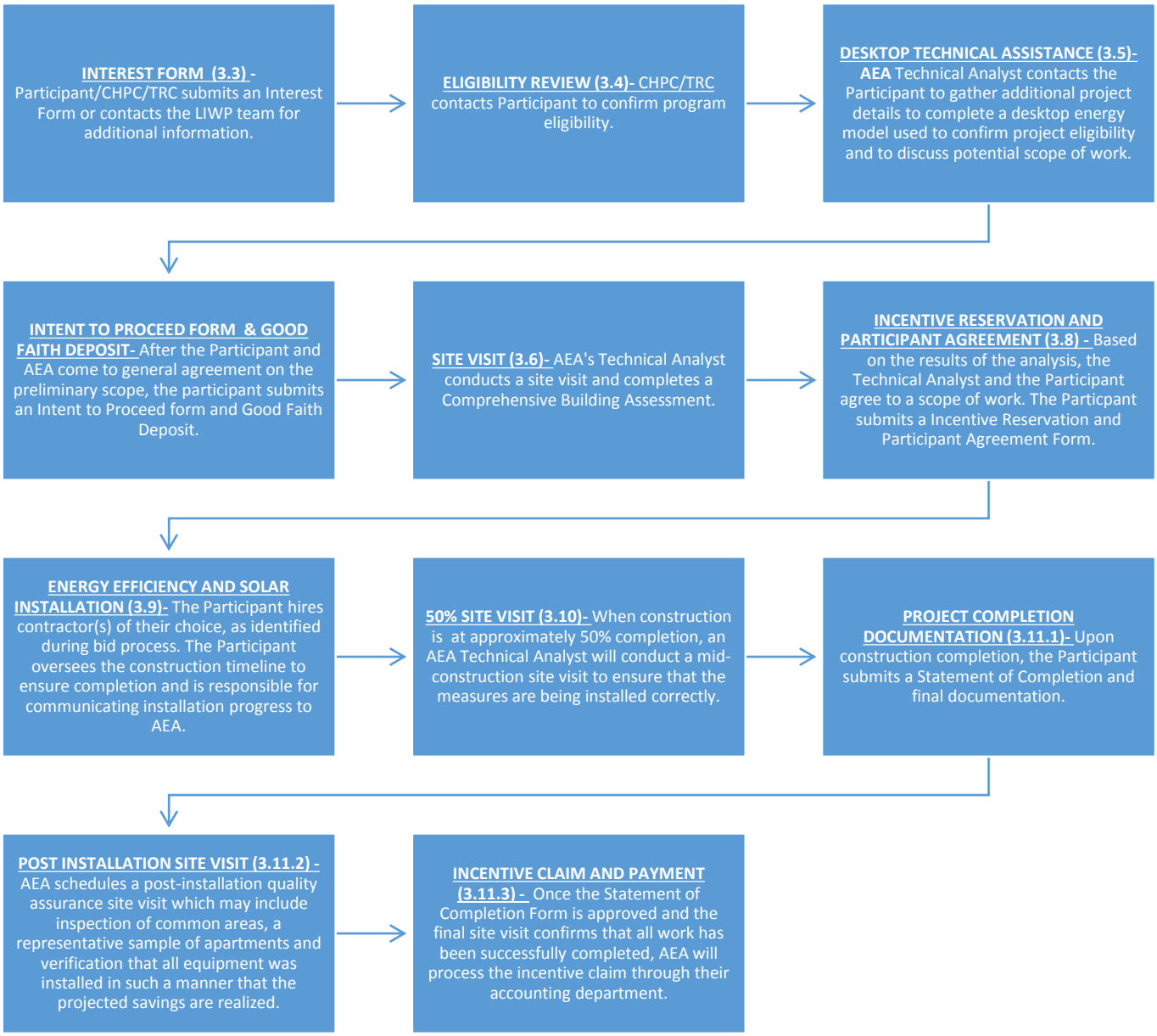


Figure 7 Participation Process Flow Chart

3.2. Participant Recruitment

CHPC will lead regional outreach with local support from county leads and individual jurisdictions, specifically focusing on the not-for-profit affordable housing development community. Additionally, TRC will lead outreach efforts on the low-income market-rate sector. CHPC and TRC will go through the following channels for Participant recruitment: industry associations, city departments, building professionals, partner organizations, and direct outreach. Outreach tactics include web presence, distribution of print materials, email blasts, phone contact, conference exhibitions and in-person presentations. AEA may attend presentations to deliver technical content.

Additionally, AEA and TRC will support LIWP-MF outreach and intake efforts by leveraging their existing industry networks. This leveraging process may include projects that are participating in other energy programs administered by utilities and local and state agencies (e.g., Energy Upgrade California).

3.3. Interest Form

When a Participant is interested in LIWP-MF, the Participant will complete an online Interest Form hosted on the AEA website. The completed Interest Form will contain contact, project, and utility information. Alternatively, CHPC and TRC may also directly contact the Participant during the Outreach and Intake process.

If the Interest Form is submitted online, it will be automatically entered into energyOrbit, and AEA, TRC and CHPC will be automatically notified to review the Interest Form for eligibility. If the information is collected by CHPC or TRC, the sub-contractors will manually enter the information into energyOrbit.

3.4. Eligibility Review

Upon receipt of an Interest Form, CHPC or TRC will pre-screen the project to check that it meets basic eligibility requirements. Eligibility is determined based on the criteria outlined in Section 1.4 Program Eligibility.

AEA may also review the project's energy use intensity (EUI) by using Wegowise, a utility data management and benchmarking platform. Wegowise benchmarking and analysis tool will allow AEA to quickly identify the most inefficient buildings in the Participant's portfolio and prioritize the best candidates for comprehensive energy assessments and retrofit projects. This will enable AEA to target LIWP-MF incentives towards properties that can benefit the most from Program funds.

If the Participant is eligible, AEA will be notified and will contact the Participant to initiate technical assistance. If the Participant is ineligible, CHPC or TRC will notify the Participant and explain the basis of the project's ineligibility. The Participant will be notified of the status of their Interest Form within 3 business days.

3.5. Desktop Technical Assistance

Once the project passes the basic eligibility requirements, a Technical Analyst will contact the Participant to gather additional project details to complete a desktop energy model; this model will be used to confirm the project qualifies for LIWP-MF.

Based on the results of the desktop energy model, the Technical Analyst and the Participant will discuss the potential types of measures suitable for the project.

Alternatively, the project may also be deemed ineligible based on the results of the desktop energy model, construction timeline, and/or inability of the Participant to undertake such work due to limited financial and/or staff resources.

3.6. Intent to Proceed and Site Visit

Upon receipt of the Intent to Proceed Form and Good Faith Deposit, an AEA Technical Analyst will begin the Comprehensive Building Assessment process. The Technical Analyst will begin that process by scheduling a comprehensive on-site evaluation of the property called a "pre-installation site visit". All cost-effective energy savings opportunities, as well as health, safety, and building durability improvement opportunities will be assessed during this site visit. Additionally, AEA will confirm the existing conditions and systems that have been previously communicated to them by the Participant and will identify all available energy upgrade opportunities at the site. This may include:

- Brief interviews with building personnel
- Inspection of common areas
- Inspection of a representative sample of units from the property
- Inspection of all relevant electrical and mechanical systems as well as the building enclosure

Upon completion, AEA will perform a detailed energy savings analysis using the approved Program calculation methodology (see Section 4.3). This savings analysis will be used to develop a comprehensive scope of work to present to the Participant.

AEA will also complete a high-level health and safety assessment which may include ambient carbon monoxide (CO) tests, gas leak tests, and visual and equipment inspections. Upon completion of the pre-installation site visit, AEA will notify the Participant of all health and safety observations. The Participant will be solely responsible for repairing or remediating all health- and safety-related issues at their own cost. However, if a health- or safety-related issue can be remediated by the installation of an EE measure, then that EE measure's costs can be eligible for LIWP-MF incentives and subject to the same restrictions (e.g., Participant co-investment). For more details regarding the Comprehensive Building Assessment please see Section 4.

3.7. Measure Selection and Approval Process

After the pre-installation site visit, the Technical Analyst will revise the preliminary scope, if necessary, based on the information gathered about the property. The Technical Analyst will use approved calculation tools to select appropriate measures for the project; measure categories are listed in Appendix 10.17. Based on iterated models in the approved energy modeling software, the Technical Analyst will recommend a comprehensive scope of work designed to maximize GHG reductions. The energy model will take into consideration all of the unique attributes and performance characteristics of the particular property that can be captured in the Participant enrollment process. Any measures for which GHG reductions can be calculated will be eligible under the Program.

A basic description of the recommended measures, minimum performance criteria, and cost and savings analysis will be presented to the Participant in a summary report. The Technical Analyst will schedule a call with the Participant to discuss the results of the analysis and answer any of the Participant's questions regarding the recommended scope of work. The Technical Analyst will work with the Participant to finalize the list of recommended measures; the Participant will make the final decision regarding which of the recommended measures will be implemented in the project provided the package of measures meets the energy savings requirements of the program.

3.8. Incentive Reservation and Participation Agreement

Upon receipt of the final scope, the Participant completes and submits an Incentive Reservation and Participation Agreement Form, one for energy efficiency measures and one for solar PV. The Incentive Reservation and Participation Agreement Form will be signed by the Participant and represents a commitment by the Participant to move forward with the installation of the measures detailed in the scope of work. The form will include all LIWP-MF measure costs, and the sources being used to fund those costs, including LIWP-MF incentives, leveraged rebates, LIHTC equity, and direct Participant costs. The form will also detail all of the post-installation closeout documentation that the Participant will be required to submit. The Incentive Reservation and Participation Agreement Form may be submitted either electronically or via postal mail, so long as it is signed by the Participant. Upon receipt of this form, AEA will review and enter all information into energyOrbit, where it will be stored on a secure, cloud-based platform.

AEA will review the Incentive Reservation and Participation Agreement Form. If approved, an Incentive Reservation confirmation is returned to the Participant with the Incentive Reservation Period indicated. The period will be determined by AEA based on the complexity and size of the Project. Reservations can be extended pending the availability of funding and evidence from the Participant that the Project is on track to complete within the Program cycle.

3.9. Energy Efficiency and Solar Installation

Upon receiving a confirmation of incentive reservation, the Participant will hire a contractor(s) of their choice that meet minimum Program requirements. The Participant will be responsible for communicating construction and installation progress and timelines with AEA. The Participant will oversee the construction timeline to ensure completion within the Incentive Reservation period. If projects experience delays the Participant should communicate this to AEA right away and discuss any potential impacts to the incentive reservation period.

To avoid excessively high project costs, AEA may review bids from all contractors performing work under the program (see Section 6 for details regarding the Contractor Network and Sections 2.1.1.4 and 2.2.6 for details regarding Procurement).

AEA may review specification documentation for equipment being installed by contractor(s) prior to installation to verify consistency with Approved Scope. Ultimately, it will be the responsibility of the Participant to ensure that installed measures are consistent with Approved Scope to avoid forfeiting the LIWP-MF incentive.

3.9.1. Solar PV Standard Offering

For projects with solar PV measures, the Participant may select the contractor of their choice. The contractor must meet the minimum program licensing and certification requirements (see Section 6.2 for details regarding License Requirements).

3.9.2. Product Endorsement and Warranties

The Parties do not endorse, guarantee, or warrant any particular manufacturer or product, and provides no warranties, expressed or implied, for any product or services. The Participant's reliance on warranties is limited to any warranties that may arise from, or be provided by, contractors, vendors, etc.

3.9.3. In-Construction Change Orders or Scope Modification

If a change order or scope modification is necessary during the construction process, the Participant must notify AEA in writing immediately. These changes may affect LIWP-MF incentive amount, leveraged funds, and scope of work eligibility.

In such cases, AEA will review the change order or scope modification in coordination with the Participant and the applicable contractor. When such change order or scope modifications affect the LIWP-MF incentive amount, leveraged funds, or requires a modification to the overall scope of work, an amended Incentive Reservation and Participation Agreement Form will be issued to the Participant by the Program.

3.10. 50% Site Visit

The Participant will notify AEA when construction is roughly 50% complete, at which stage an AEA Technical Analyst will conduct a quality assurance site visit to ensure that all measures are being correctly installed, such that the measures will deliver the anticipated GHG savings, unless such an inspection is determined to be unnecessary by program staff.

3.11. Post-Installation Activities

3.11.1. Project Completion Documentation

Upon construction completion, the Participant will submit a Statement of Completion. By signing this form, the Participant will attest that all measures identified in the Incentive Reservation and Participation Agreement Form have been completed. The Statement of Completion may be submitted electronically or mailed to AEA.

In addition to the form, the Participant must also submit a W-9 with taxpayer ID, permits required for the project, and all contactor invoices and receipts, documentation of all applied sources of funding, and all mandated workforce development forms to AEA. Participant will also be required to submit CF-3R code forms if Home Energy Rating System (HERS) testing and verification are required for code compliance (e.g., duct testing required with heating, ventilating, and air conditioning [HVAC] change-out).

AEA retains all invoices and receipts in the project file in eO. If applicable, AEA will maintain all other records for accounting purposes. The Statement of Completion contains the following information: (see Appendix 10.5 for complete form)

- Property name & contact information
- Check payable name and mailing address for LIWP-MF incentive payment
- Participant signature
- Checklist for all required additional documentation to be submitted.

AEA will review the materials for completeness and consistency with the Approved Scope.

3.11.2. Post-Installation Site Visit

AEA will review the Statement of Completion for completeness. Upon successful review, the Technical Analyst will schedule a post-installation site visit to confirm that installed measures match the Approved Scope. This visit will include:

- Inspection of common areas and a representative sample of apartments
- Verification that all equipment was installed correctly, such that the projected energy savings will be realized
- Combustion safety testing
- Verification of in-kind measures contributing to Participant co-investment requirement

Following the site visit, AEA will account for any modifications to the Approved Scope, and adjust the incentive accordingly. AEA will complete a Final Verification Report and Incentive Summary. This memo documents AEA's performance of the final project verification and combustion safety testing and confirms that all energy savings measures were installed (see Appendix 7.17 for template). AEA will notify the Participant upon successful completion of post-installation verification, prior to issuing the incentive.

All construction must be completed, and Statement of Completion submitted by the Participant in time for the project to be field verified and rebate approved, including satisfactory completion of Participant documentation requirements. In order for Round 1 projects to be fully completed and verified by April 30, 2017, the Participant should complete the Statement of Completion Form by no later than March 31, 2017. For Round 2, the Statement of Completion Form should be completed by no later than February 28, 2018. For Round 3, the Statement of Completion Form should be completed no later than February 28th, 2020. For Round 4, the Statement of Completion Form should be completed no later than February 28th, 2021.

3.11.3. Incentive Claim & Payment

Once the Statement of Completion is approved and the final site visit confirms that all work has been successfully completed, AEA will process the incentive claim through their accounting department.

The Participant may choose to either receive the incentive in the form of a check or electronic transmittal of funds into the Participant's account depending on the Participant's selection. If the Participant elects to receive the incentive payment via check, the check will be mailed to the Participant within 30 days of AEA issuing the post-installation site visit memo. If the Participant elects to receive the incentive payment electronically, the participant must complete, sign, and submit the ACH Payment Authorization Form (See Appendix 7.8) along with a void check to AEA. Then, the incentive payment will be transferred within 7 business days of AEA issuing the post-installation site visit memo.

4. COMPREHENSIVE BUILDING ASSESSMENT

The objective of the Comprehensive Building Assessment is to evaluate the entire building and all of its associated systems in order to identify deep GHG reduction opportunities while also addressing water, indoor environmental quality, health, safety, and building durability opportunities that align with the planned energy-related scope of work. This section provides more detail about the Comprehensive Building Assessment Process.

4.1. Initial Consultation

The Participant may complete an interest form online or in print, or may call the AEA technical assistance phone number. AEA will receive the call or follow up via phone or email to conduct the initial consultation. At the initial consultation, AEA will discuss the following with the Participant:

- Planned scope of work on project
- Participant interest in various technologies and measures
- Basic information about the building's energy systems, which may also be gathered during data collection phase
- Participant financial details, such as available funding and ability to take on debt
- Anticipated project timelines

If requested, AEA may facilitate a handoff to recommend outside programs and coordinate with these programs if the Participant is not eligible for LIWP-MF.

4.2. Pre-Installation Site Visits[2]

The purpose of the pre-installation site visit will be to collect all information necessary to conduct an appropriate energy, water, health, safety and building durability analysis, including sufficient information to construct an accurate energy model. The site visit shall include an in-person visit to the project site by an AEA Technical Analyst. To ensure a successful site visit and data collection, the protocols delineated hereafter should be followed by all relevant parties.

4.2.1. Site Visit Preparation, Scheduling, and Tenant Notification

In preparation for the site visit, the following will be completed.

- The Technical Analyst will review the building's eligibility for participation in the Program.
- The Technical Analyst will review 12 months of prior utility bills (including gas, electric and water) in order to calculate annual utility cost by fuel type and seasonal variations. [3]
- The Technical Analyst will review as-built drawings (if available) and any other pertinent documentation about the building and its systems, including inspection reports, to be provided by the Participant or Participant's representative or made available online. [4]

[2] Refer to section 3.5 of *Building Performance Institute's (BPI) Multifamily Building Analyst Professional Technical Standards*.
[3] Refer to section 1.7 of the *Building Performance Institute's (BPI) Multifamily Building Analyst Professional Technical Standards*.
[4] Refer to section 1.8 of the *Building Performance Institute's (BPI) Multifamily Building Analyst Professional Technical Standards.*

- The Technical Analyst will communicate requirements for the pre-installation site visit and schedule the site visit with the Participant or Participant's representative at a time convenient for that person. The site visit shall seek to cause minimal disruption to the project's residents and neighbors.
- The Participant shall notify residents whose units will be inspected as part of the Assessment. This notification shall be the sole responsibility of the Participant.

Pre-installation site visits begin with a brief interview of key building personnel such as the Participant, Property Manager, or Maintenance Supervisor. AEA Technical Analysts require access to all common areas (mechanical rooms, roofs, corridors, trash rooms, storage closets etc.), as well as a representative sample of apartments (see Section 4.2.2, Sampling Protocol). The Technical Analyst(s) will coordinate with a building representative, typically the Maintenance Supervisor, during the pre-installation site visit. Site visits will generally take 3-4 hours, but duration will vary depending on the size and complexity of the property.

AEA will communicate with the Participant via phone and email to collect information about the building required for software inputs. The required information includes, but is not limited to:

- Number of Units
- Heating Type (e.g., central furnace, wall furnace, electric resistance, etc.)
- Cooling Type
- Domestic Hot Water type (e.g., central, in unit, etc.)
- Duct location (e.g., no ducts, attic, conditioned space, etc.)
- Conditioned Floor Area
- Year built or last renovated
- Occupant - Residential Kitchens (total)
- Occupant - Residential Bedrooms (total)
- Typical wall construction (e.g., wood studs, metal studs, etc.)
- Glazing description (e.g., single metal clear, double vinyl low-e, etc.)
- Bottom-floor type (e.g., slab-on-grade, suspended slab, wood, etc.)
- Typical roof construction (e.g., flat roof, gabled roof, etc.)
- Roof description (attic or cathedral)

4.2.2. Sampling Protocol[5]

Before conducting the energy assessment, the potential need for sampling will be determined. It may depend on the size of the building(s), potential issues with access to tenant dwellings, or cost implications. On-site sampling will be involved in two general activities:

- Sampling of buildings or units for inspection, testing (including CAS), and analysis

[5] The sampling protocols were excerpted from and align with Technical Guidelines for Multifamily Building Energy Audits pending publication. MacDonald, Michael; Mini Malhotra; and Mark Ternes. *"Technical Guidelines for Multifamily Building Energy Audits." ORNL/TM-2014/0297 (DRAFT). Oak Ridge National Laboratory. April 2014 (Draft).*

- Sampling of equipment such as furnaces, refrigerators, hot water heaters, or lighting to evaluate and document installed characteristics and operation

An adequate sampling plan will be established prior to the site visit. The sampling plan will define the number of dwellings required for energy modeling, different types of testing, and different types of inspections. The means of notifying residents and obtaining access to dwellings to be inspected must be established and residents informed. The plan will consider requirements for sampling of common spaces.

Dwelling units: Though a greater number of units may be preferable, the minimum number of dwelling units to be sampled can be found in Table 2. The minimum column is for difficult cases; the recommended value should be the target. Interpolation will be necessary for larger buildings.

In addition, the sampling plan should define the following:

- Sampling should include a representative cross section of units within the building; e.g., if units vary in size, the sample should reasonably represent all sizes and locations (top, bottom, inner, outside) to the extent possible.
- Units in the audit sample should undergo a uniform scope of inspections and diagnostic testing.
- Sample sums must be extrapolated up to account for the whole building in order to analyze the whole building; i.e., if 5 units are sampled in a 12-unit building, the simple extrapolation is to multiply summed values (such as for energy use) by 12/5 to obtain a value for the whole building.
- If excessive variation for some (normalized) results is found for the sample, the sample set may need to be extended, at least for the problem area, to obtain acceptable results.

Sample Group Size (total number of spaces)	Number of spaces to sample	
	Minimum	Recommended
2 – 9	2	3
10 – 19	3	5
20 – 29	4	7
30 – 49	5	9
50 – 74	6	11
75 – 99	7	13
100 – 149	8	16
150 – 200	9	20
>200	10	25

Table 2 Sampling Requirements Table

For in-unit heating, cooling, and water-heating equipment efficiencies, capacities, and operational modes, an average of the sample for specific types may be used for the whole building or type of space in the building. Lighting power density and equipment power density are also averaged, either for the whole building or space type, or by floor. Water use and temperature values per person or per dwelling, are averaged. Infiltration and ventilation should be handled according to the specifications of the energy modeler. The data may be a whole-building average based on the sample average, or it may be determined by floor and then the values calculated, or possibly interpolated, by floor.

Common spaces: The common space sampling will be proportional to the number of floors.
For hallways:

- In buildings having 1–4 stories, hallways should generally all be inspected. Then the average parameters needed for energy modeling and energy measure determination should be calculated using the most representative data.
- For buildings of 5–20 stories, hallways on at least half the floors (rounding up for odd values, e.g., 3 floors for a 5-story building) should be inspected.
- In buildings taller than 20 stories where elevator banks have floor series (e.g., one bank serves floors 1–24 and one bank serves 24–48), hallway inspection can be based on elevator layouts.
- In general, at least 10 floors should be inspected. For multiple banks, an equal number from each bank should be inspected, preferably at least 10, up to half of the floors on each elevator bank.

For stairways:

- In low-rise buildings (3 stories or less), every interior stairwell should be inspected, with special attention paid to the top and bottom of each.
- In buildings taller than three stories, the top and bottom of every interior stairwell should be inspected, and any exterior façades of interior stairwells should be examined before deciding which stairwells to inspect further. Interior stairwell inspections in these building should include 40% of the stairwells in each building (or a minimum of one) and should cover at least 25% of the total floor area of each one inspected.

Meeting rooms, day rooms, fitness facilities, and office space may all be aggregated as “other” for analysis, but all data on all “other” spaces must be obtained to ensure that the aggregated space is sufficiently representative for energy measure evaluation.

Garages may need only limited inspection, but a reliable determination of total floor area often is needed for lighting power density calculations.

Exterior lighting can be sampled on an ad hoc basis, although some type of normalizing factor, such as per floor or per foot of perimeter will often be helpful.

4.2.2.1. Multiple Building Sites

Sites with multiple buildings may have only a sample of buildings inspected and tested. If a central plant exists, that plant should undergo a thorough inspection and diagnostic procedure as needed, unless specifically excluded by the audit scope. Other unique buildings may also require a specific inspection and testing as part of the pre-installation site visit if these inspections and tests are included in the audit scope. For dwelling unit buildings, the guidance will be as follows.

- For properties containing multiple buildings the number of units to be sampled will be determined based on the total number of units on the property (using Table 3). Units from more than one building should be inspected and tested; if one building is particularly representative of the site as a whole, then than that one building may serve as a proxy for all others.
- If multiple building types are present at the site, the pre-installation site visit should cover at least one of each type (e.g., height, orientation, structure, year built, floor plan, major upgrades, etc.), or the most representative set of buildings.

- If a site has more than 24 buildings, at least 10% of them should be inspected (e.g., if there are 25–34 buildings, the site visit should cover at least 3).

4.2.3. Project Interviews[6]

The Technical Analyst shall interview at least one of the following persons prior to and/or at the time of the site visit:

- Property manager
- Maintenance director or maintenance staff
- Participant or Participant's representative

The purpose of the interviews is to:

- Discuss the Comprehensive Building Assessment 's objectives and the client's goals for the scope of work
- Discuss building characteristics, existing documentation, and project energy and water performance
- Discuss residents' comfort, health and safety and agree on an approach to dwelling unit spaces for the pre-installation site visit
- Discuss operations and maintenance procedures
- Address any other stakeholder questions or concerns

AEA will also collect information about financial readiness. This information informs AEA's recommendations for programs to access, including financing products. Information collected might include, but is not limited to:

- Capital reserves available for upgrades
- Desire or willingness to undertake loans to finance the upgrades
- Outstanding mortgages and loans on assessed value of Property (to estimate Loan to Value ratio)
- Net operating income (to estimate Debt Service Coverage Ratio)
- Property tax liability
- Stage of re-finance cycle that the property/portfolio is in

4.2.4. Health and Safety Observations[7]

If, during the course of the pre-installation site visit, the Technical Analyst observes a condition that, in his or her judgment, may be a potential threat to health or safety, the Technical Analyst shall notify the designated persons in the project application and/or any individuals that are present representing the Participant. Code compliance will not be a responsibility of the Technical Analyst. In the event that the Technical Analyst becomes aware of potential code violations, any observations will be shared with the Participant.

[6] Refer to section 1.9-1.13 of the *Building Performance Institute's (BPI) Multifamily Building Analyst Professional Technical Standards*.
[7] Refer to section 3.4 of the *Building Performance Institute's (BPI) Multifamily Building Analyst Professional Technical Standards*.

4.2.5. Visual Inspection and Diagnostic Testing

During the site visit the AEA Technical Analyst will confirm that the site conditions, equipment descriptions and other key building characteristics match the descriptions that were submitted by the Participant on the Interest Form. The Technical Analyst will also identify any other EE opportunities that may have been overlooked by the Participant.

The site visit shall involve visual inspections and diagnostic testing of the building envelope, domestic hot water, HVAC, combustion safety, and lighting systems. The equipment specifications will be used in the energy modeling and analysis phase of the Assessment. The Technical Analyst shall complete visual observation and diagnostic testing in order to be able to make recommendations for energy savings. The only required diagnostic testing will be combustion appliance safety testing.

4.3. Energy Analysis & Savings Calculations

AEA will use the most streamlined approach possible to create the scope of work, while still allowing for the highest degree of flexibility in selecting the appropriate measures for each specific property. The scope development and measure selection process will be dependent on the level of complexity of the property design, the building systems, and the savings opportunities identified by the Participant and AEA. The process will strive to balance an efficient calculation methodology with accurate reported savings to generate a complete scope of work that is reflective of both the Participant's interests and cost-effective upgrade opportunities.

The approach below will take the greatest advantage of the AEA's ability to perform comprehensive pre-installation site visits which will document the actual existing conditions of the property and then use those existing conditions to develop scopes of work that are most beneficial for that particular property. This approach will address the limitations in the existing Database for Energy Efficient Resources (DEER) and approved modeling tools that specifically affect the implementation of existing whole building MF programs. Some of those limitations include:

- Common MF measures opportunities that are not represented in the DEER, such as:
    - Central heating
    - Central domestic hot water (DHW)
    - Common area lighting
    - Pipe insulation
    - Heating and DHW controls
    - Pumps
    - Fans

- EnergyPro's inability to model common MF measures, such as:
    - Heating distribution measures (thermostatic radiator valves [TRVs], modulating valves, and pipe insulation for uninsulated pipes)
    - Low flow fixtures
    - Steam boiler retrofits
    - Specific lighting measures (in the Residential Performance Module for low rise buildings)

EnergyPro/EnergyProLite:
An initial scope of work will be developed by the Technical Analyst using the EnergyProLite (EPL) interface for the Non-Residential Performance Module of EnergyPro (Version 5), which runs on the DOE 2.1 calculation engine. The software will generate the performance-based savings calculations for the most typical MF measure opportunities. The EPL interface provides streamlined building geometry development through the user defined values and prototype buildings. The EPL Software has been thoroughly vetted and developed with input from various regulatory, investor-owned utility, local government, and 3rd party implementer stakeholders through the Multifamily Home Energy Retrofit Coordinating Committee (MF HERCC).

For buildings with relatively simple systems and common energy conservation measure (ECM) opportunities, AEA will complete all savings calculations within EnergyPro, and the analysis process will conclude at that stage.

Work Papers:
For those measures that cannot be modeled in EnergyPro, and are not listed in the DEER, AEA will use CPUC-approved Work Papers as the basis of their savings calculations and submit these Work Papers to CSD.

Custom Calculations:
In the rare situation in which identified savings opportunities could not be calculated with the above methods, AEA will perform spreadsheet calculations based on industry standard engineering principles and supporting documentation, such as specific sections of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers' (ASHRAE) Fundamentals, Energy Management Handbook, case studies, and other industry resources will be included within an assessment workbook developed by the administrator. If a measure falls into this category, the methodology used to calculate the savings serve as a precedent to expedite other relevantly similar future projects with the same measure.

Renewables:
For calculating savings associated with PV AEA will use the PVWatts Calculator. For Solar Hot Water AEA will use the California Solar Initiative's (CSI) Solar Thermal Calculator.

4.4. Measure Cost Assessments

AEA will then begin the cost estimation process, which will employ in-house resources for measures costs from similar projects, RS-Means, and direct quotes from contractors, manufacturers, or their representatives. AEA will enter this cost data into its GHG calculator to develop a comprehensive table of all financial information and cost effectiveness metrics for each measure; this table will be presented to the Participant.

4.5. Work Scope Development

AEA will then work with the Participant to arrive at an agreed upon scope of work. The Participant will sign the Incentive Reservation and Participant Agreement Form which will be sent to CSD for review and approval. The Participant will be notified of the status of their Incentive Reservation and Participant Agreement Form within 2 business weeks.

If a property already has an existing audit report that meets LIWP program requirements (e.g. reports performed under EUC or for TCAC typically should meet LIWP requirements), then AEA will, at its discretion, use that report to document existing conditions. In this situation AEA will still conduct a site visit to confirm existing conditions, and will provide a summary memo attached to the existing report with any notation of existing condition discrepancies (e.g. a piece of equipment has been changed since the original report was written). The memo will also contain a summary of recommended measures and corresponding LIWP incentives as typical with the LIWP report template.

4.6. Installation Requirements

AEA will maintain a set of minimum performance standards (see Appendix 7.11 for an example) for basic measures installed under the Program and will review and assist in developing custom performance requirements for the more complex measures when necessary. This process may include assistance with the following tasks:

- Development of the initial general requirements for commonly installed measures.
- Modifications and/or addendums to the original performance requirements throughout the construction process as needed.
- Assistance in developing performance requirements for more complex mechanical system measures when necessary.
- Assistance to program Participants in identifying and selecting appropriate contractors to bid on the project and interfacing directly with those contractors as needed.
- Pre-bid walkthroughs with contractors, property managers, and building maintenance supervisors to review the performance requirements and the scope of work.
- Bid reviews and approvals.
- Review and final signoff of contractor submittals to ensure that the equipment being installed matches the intent of the measure recommendations. This includes verification of system sizing calculations where relevant.
- If the measure involves replacing appliances, AEA will provide information detailing how to properly recycle the removed appliances. The Program will hold no further responsibility to either carry out or facilitate the recycling of those appliances; this will be the responsibility of either the Participant or the Participant's selected contractors.

5. QUALITY ASSURANCE

5.1. Project Quality Assurance

An AEA Technical Analyst will go to the site to provide on-site quality assurance inspection at two stages of construction: 50% construction completion and upon construction completion.

5.1.1. 50% Construction Completion

The Participant will notify AEA when construction is approximately 50% complete and the Technical Analyst will schedule a time that the Participant or authorized responsible party will meet them on-site. The primary purpose of the 50% inspection will be to catch any mistakes or deviations from the performance requirements that may be occurring during construction before is too far along to make changes without incurring significant cost burdens and inconveniences. This inspection will be most critical when the scope of work includes measures that will be difficult or impossible to inspect once they are 100% complete (e.g., wall insulation, which cannot plausibly be inspected after sheet rock is also installed). In cases where the scope of work is fairly simple and all of the work can be easily inspected upon completion without risk of significant program noncompliance, a 50% inspection may not be necessary.

The property representative must be able to give the Technical Analyst access to the relevant facilities. These will include any locations that are affected by the recommended scope of work.

The Technical Analyst will examine the building for the following purposes:

- Verify that the measures are being installed correctly, and in such fashion that they will deliver the anticipated energy savings.
- Suggest changes that may be necessary in order to ensure the measures are installed correctly and in accordance with best practice.

5.1.2. Post-Installation Site Visit

The Technical Analyst will schedule a time during which the Participant or authorized responsible party may meet them on-site. The property representative must be able to give the Technical Analyst access to all measures that were installed under the incentive program. The Technical Analyst will go to the site to:

- Verify that all measures with specified minimum efficiencies have been installed
- Verify that the installation meets the Minimum Performance Criteria
- Obtain any remaining contractor and/or Participant signatures, and/or outstanding invoices/receipts, including documentation of a minimum one-year material and labor warranty
- Perform any necessary combustion safety testing (see Section 5.2)

5.2. Health and Safety/ Combustion Safety Testing

Participant and their hired contractor(s) will be responsible for ensuring the safety of residents and workers on the Project site.

During the pre-installation site visit, the Technical Analyst will be focused on verifying that the conditions described in the application accurately represent the actual site conditions. The on-site evaluation will not be intended to be a health and safety assessment, and the Program assumes no liability for any building health and safety related issues. However, if the Technical Analyst identifies any immediate health and safety concerns, including signs of moisture issues, pests, lead, asbestos, electrical hazards, or other general health and safety concerns, they will include those findings in their summary report. It will be the Participant's responsibility to ensure that those health and safety concerns are addressed.

Additionally, AEA will conduct combustion safety testing during the pre-installation site visit as per the following:

1. Combustion safety testing will be performed where required at pre-installation and post-installation site visits. It will be conducted in accordance with the Multifamily Home Energy Retrofit Coordinating Committee Combustion Appliance Safety Testing Protocols for Existing Multifamily Buildings (MF HERCC CAS Testing Protocols).

2. During the initial pre-construction site visit, the Technical Analyst will conduct combustion safety testing on combustion appliances in a sampling of apartments in accordance with the MF HERCC CAS Testing Protocols.

3. If there are critical issues as defined by the protocols, then the sampling rate may be increased based on the professional discretion of the BPI Certified AEA Technical Analyst. All critical issues must be addressed prior to commencement of work.

For professional qualifications, detailed testing protocols, and compliance demonstration see the full document: *Home Energy Retrofit Coordinating Committee Combustion Safety Testing Protocols for Existing Multifamily Buildings, V 1.0, January 2015*.

HERCC CAS Protocols

5.3. Programmatic Quality Control

AEA will ensure that all of the data required for Evaluation, Measurement and Verification (EM&V) is collected throughout the process and is tracked, stored, and evaluated properly. Part of the data collected from project Participants includes their motivations, larger goals, barriers, and constraints related to EE decisions. The team will use this data to develop recommendations for program improvements, as well as for informing policy options going forward. AEA will collect this information from Participants via the Program Satisfaction Surveys that Participants will be asked to complete upon project completion.

All quantitative data points will be stored in energyOrbit and will be easily accessible for EM&V purposes.

AEA recognizes that CSD may request that a CSD hired third-party firm verify completed projects on a sampling basis. The Participant will be notified in the terms and conditions that they will be required to provide access in such instances.

5.4. Energy Education

As part of project closeout, AEA will perform onsite education with the Property Management and Facility Operators in order to familiarize them with the operation and maintenance procedures associated with the newly installed EE measures, and to ensure long-term, persistent energy savings. Additionally, standardized building science and green property manager and building operator classroom courses will be offered when there is ample interest from participating properties.

Educational material and flyers will also be provided to the residents in participating properties to explain the energy upgrades installed in their property as part of the Program. ESA education materials may be provided at properties that include ESA measures.

5.5. Customer Service

AEA is the main point of contact for customers who are participating in LIWP-MF. AEA is expected to provide professional customer service to Participants. Participants are encouraged to contact the LIWP Program Manager (liwpinfo@aea.us.org) if any problems or concerns arise.

Program participants will be asked to participate in a post-installation LIWP Survey to gather feedback regarding program participation and satisfaction. LIWP Surveys will be conducted via phone interviews with participants.

For any technical questions, the Participant may call the Technical Assistance Hotline at 510-270-4956.

Additionally, complaints regarding customer service may be directed to CSD (916-576-7140) or LIWP LMF@csd.ca.gov.

6. CONTRACTOR NETWORK

Any qualified contractor interested in joining the LIWP-MF Contractor Network may become a Participating Contractor by completing the following steps.

1. Sign the LIWP Contractor Orientation Form (Appendix 10.13)
2. Satisfy and provide supporting documentation for all applicable license, certification, and insurance requirements.
3. Inform the program team of the contracting services provided and which California Regions served[8].

Participants may work with any contractor(s) they choose, if the contractor(s) maintains appropriate licenses for work conducted and abides by California laws

6.1. Insurance Requirements

The insurance requirements for all contractors participating in LIWP-MF are shown in Figure 8. Contractors must maintain insurance to the levels listed below. Upon Request, Contractor must be able to provide a Certificate of Liability Insurance from their insurance vendor to the Program administrators.

Insurance Provision	Amount
Commercial General Liability – for bodily injury, property damage, and personal injury.	$1,000,000 – each occurrence $2,000,000 – in aggregate
Business Automobile Liability – "any auto" *(Company Vehicles)* Personal Automobile Liability – "any auto" *(Personal Vehicles)*	At least $1,000,000 At least $500,000
Worker's Compensation and Employers' Liability* – injury or death, each accident	At least $1,000,000 **Not required for Sole Proprietor*

Figure 8 Contractor Insurance Requirements

6.2. License Requirements

The Program will require applicable contractors to maintain a valid California State License Board (CSLB) license in one of three categories: CSLB A, B or C. Contractors must be able to provide proof of valid license to Program administrators upon request. Program administrators will confirm valid licenses of contractors participating in the LIWP-MF program on a sampling basis. Contractors may retain services of any additional contractors; however, the Contractor will be responsible for ensuring that all subcontractors involved in a LIWP-MF project adhere to all rules, insurance, and certification requirements stipulated by the Program.

[8] Regions include: Northern California, Northern Sacramento Valley, Greater Sacramento, Bay Area, Central Coast, San Joaquin Valley, Central Sierra, Southern California, and Southern Border. For map, please see: https://en.wikipedia.org/wiki/Economic_regions_of_California#/media/File:California_economic_regions_map_(labeled_and_colored).svg

Scope of Work	Required
Structural Evaluation	CSLB 'A' General Engineering License
General Contracting	CSLB 'B' General Building Contractor
Specialty Trade	CSLB 'C' Specialty Contractor
Renovation, Repair and Painting that disturbs lead-based paint in buildings built before 1978	United States Environmental Protection Agency's (EPA) Lead Safe Certification

Figure 9 Contractor Qualifications

Note: A or B-General Building Contractor License may be supplied by the contractor to cover all scopes, but it will be the responsibility of that contractor to ensure any subcontractors hired are licensed and certified for the scope of work being performed.

6.3. Contractor Orientation

The Program will have a contractor orientation presentation available on the program website. The orientation will discuss the program overview and requirements. Specifically, the orientation will present the rules, expectations and project process, as well as best practices for completing work within the Program. In addition to the Program orientation, Participating Contractors will be offered additional training opportunities throughout the Program to maintain or improve skills and practices involved in completing work within the Program. As necessary, the Program will require specialty trades to attend topic specific trainings outlining best practices (for example, building envelope, water heating, HVAC, lighting, etc.).

6.4. Workforce Development

The project must adhere to the workforce development (WFD) requirements as required by the Program. The Participant and Installation Contractor(s) must submit all required WFD documentation at the completion of the project. Contractors that hire within the Disadvantaged Communities (DACs) will receive preferred listing on the Participating Contractor list and other marketing benefits. The Program parties will explore other opportunities to encourage workforce development, such as:

- Requiring building operator training for properties receiving LIWP-MF funding
- Encouraging hiring of staff residing in DACs to fill positions created as a result of LIWP-MF, and tracking of project hours
- Develop a workforce development network list
- Coordinate and leverage relationships with workforce development and contractor associations such as California Workforce Development Boards, Center for Sustainable Energy, Brightline Defense Project, Energy Efficiency for All, California/Nevada Joint Apprenticeship Training Committee, and Community Colleges

Program parties will establish collaborative relationship with local industry organizations to encourage workforce development in the DACs.

6.4.1. Solar PV Workforce Training Requirements

For Solar PV projects, the PV contractor/installer agrees to the workforce training requirements as described in Section 6.4.1.1 (Appendix 10.14). After the installation is complete, the contractor submits a completed version which would include the job trainee's signature and information.

6.4.1.1. Workforce Training Requirements

In order for a contractor to be eligible to work on a PV project receiving LIWP incentive, the contractor agrees to hire a student(s) or graduate(s) of a job training program[9] and provide Job Training Opportunities (JTO) hours. The training can be completed via direct solar installation or in a support role on the specific LIWP solar project indicated in the Project Address below, including but not limited to project installation, project design, project engineering, or project coordination.

The Contractor is responsible for hiring the job trainee(s) for each LIWP installation and will need to provide the corresponding LIWP Administrator with the names of the eligible job training program and job trainee(s) used for each LIWP installation. A current contractor employee who graduated from an eligible job training program within 12 months of the LIWP installation project and has been employed with the installer for 3 months or less would fulfill the workforce partnership requirement to participate as one of the trainees.

For time spent on each LIWP installation, contractor must pay job trainee(s) at a rate consistent with the contractor's entry level or temporary worker wage.

Contractor's insurance must cover the employment of the LIWP job trainees, including temporary hires if the job training organization/program does not provide liability coverage for its trainees.

The JTO hours are set forth in the following table:

System Size (DC-kW)	Job Training Opportunities
0 -<10kW	1 JTO and no less than 16 hours
10 kW-<30 kW	2 JTOs and no less than 16 hours each Trainee
30 kW-<100 kW	2 JTOs and no less than 24 hours each Trainee
100+ kW	3 JTOs and no less than 40 hours each Trainee

Figure 10 Solar PV Job Training Requirements

6.5. Corrective Action

All Contractors shall submit accurate, complete, and quality work to LIWP-MF staff for review. In addition, all contractors shall complete work according to the specifications defined by LIWP-MF staff, Participants, and applicable legal requirements.

[9] Eligible job training programs include those offered by a California Community College or other PV-training programs offered to the public by local government workforce development programs, community non-profits, private enterprises, or the electrical workers union with 40+ hours of instructional and/or hands-on PV installation and design training.

If Program submittals and fieldwork do not meet Program standards, the LIWP-MF staff will work with the property owners to communicate non-compliant measures and identify issues that require remediation. If property owners and contractors are unable or unwilling to remediate measures to meet program standards, incentive amounts may be reduced accordingly. Significant failures that reduce energy savings below minimum program thresholds may require corrective actions to remain eligible.

7. APPENDICES

7.1. Acronyms

AEA	Association for Energy Affordability
AMI	Area Median Income
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
BPI	Building Performance Institute
BTU	British Thermal Unit
CalEPA	California Environmental Protection Agency
CalHR	California Department of Human Resources
CARE	California Alternate Rates for Energy
CAS	Combustion Appliance Safety
CCA	Community Choice Aggregations
CES	CalEnviroScreen
CHPC	California Housing Partnership Corporation
CPUC	California Public Utilities Commission
CSLB	California State License Board
CSD	California Department of Community Services and Development
CSI	California Solar Initiative
DACs	Disadvantaged Communities
DC	Direct Current
DEER	Database of Energy Efficiency Resources
DHW	Domestic Hot Water
DOE	United States Department of Energy
EARS	Expenditure Activity Reporting System
ECM	Energy Conservation Measure
EE	Energy Efficiency
EM&V	Evaluation, Measurement and Verification
eO	energyOrbit
EPA	United States Environmental Protection Agency
EPL	EnergyProLite
EUC	Energy Upgrade California
EUI	Energy Use Intensity
GHG	Green House Gas
HERS	Home Energy Rating System
HUD	United States Department of Housing and Urban Development
HVAC	Heating, Ventilating, and Air Conditioning
IOU	Investor Owned Utility
ITC	Investment Tax Credit
JTO	Job Training Opportunities
kWh	Kilowatt Hours
LIHTC	Low Income Housing Tax Credits
LIWP	Low-Income Weatherization Program
MF	Multifamily
MASH	Multifamily Affordable Solar Housing
MF	Multifamily
MF HERCC	Multifamily Home Energy Retrofit Coordinating Committee

$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
PHA	Public Housing Authority
PPA	Power Purchase Agreement
PV	Photovoltaic
RFQ	Request for Qualifications
SIR	Savings to Investment Ratio
SWH	Solar Water Heating
T&C	Terms and Conditions
T&M	Time and Materials
T&TA	Training and Technical Assistance
TCAC	California Tax Credit Allocation Committee
TRV	Thermostatic Radiator Valve
UA	Utility Allowance
WCA	Working Capital Advance
Wx	Weatherization

7.2. Glossary of Terms

Approved Scope – Package of measures defined and approved for the incentive in Incentive Reservation and Participation Agreement form.

Nonresidential Spaces – Includes retail spaces, offices, and commercial laundry facilities for the public, most common areas and ancillary uses for residents such as computer rooms, community rooms.

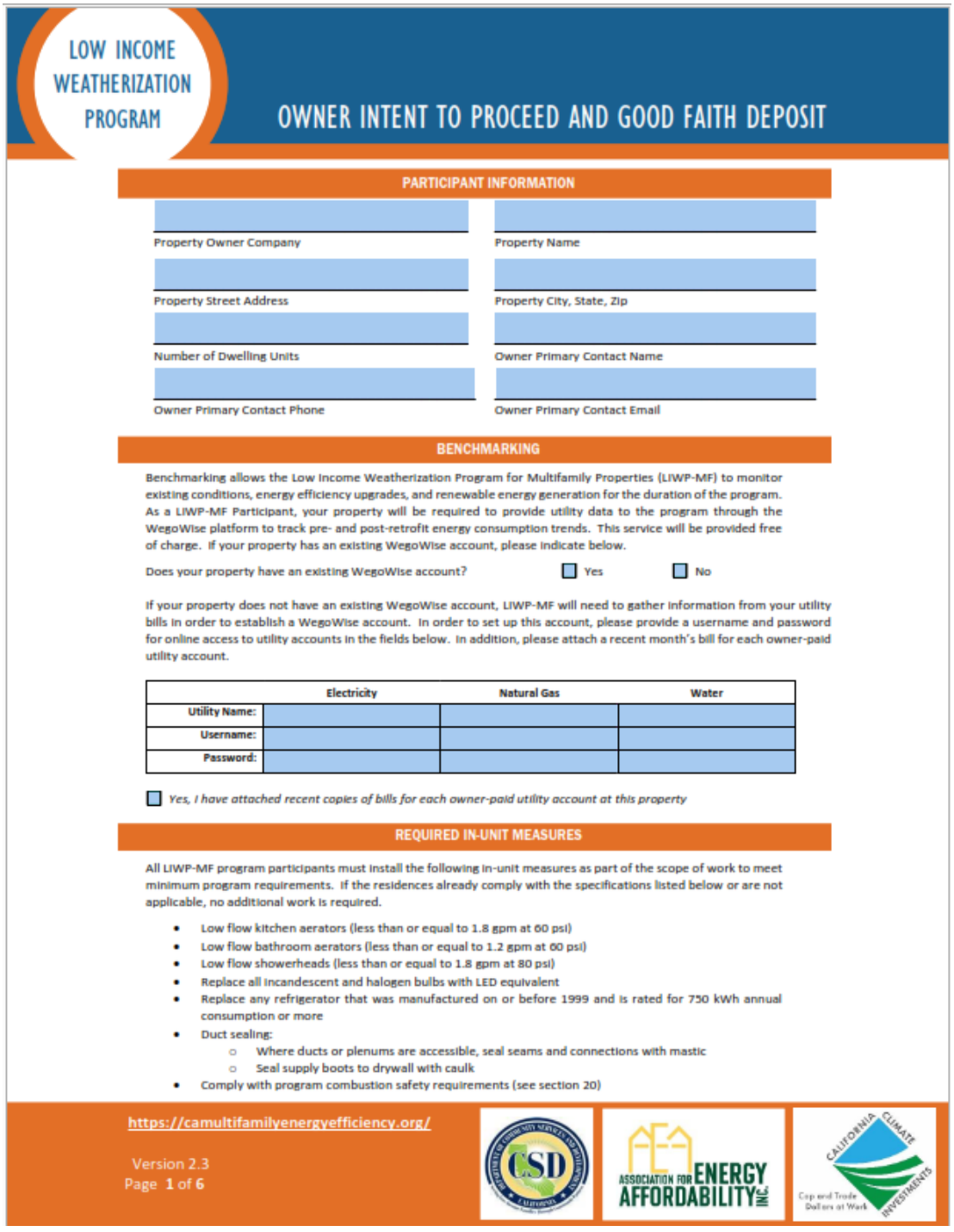
Participant – Property Owner or authorized third party (e.g., property manager) with decision making authority on an eligible project that has enrolled in the Program.

Program – The offering of technical assistance and incentives, their implementation, and administration.

Project – Building(s) for which technical assistance is received and/or on which incentive work is completed. A Project is defined as one or more contiguous properties under the control of one Participant entity or subsidiaries of one entity. Multiple buildings that meet this description are considered one Project.

Residential Spaces – The units themselves and the areas used to access the units. This includes the common hallways and stairwells to access the units, and laundry rooms accessible only to tenants, but not rooms for uses that are not necessary to the maintenance of a household, such as computer or community rooms.

7.3. Intent to Proceed Form



LOW INCOME WEATHERIZATION PROGRAM

OWNER INTENT TO PROCEED AND GOOD FAITH DEPOSIT

PARTICIPANT INFORMATION

Property Owner Company

Property Name

Property Street Address

Property City, State, Zip

Number of Dwelling Units

Owner Primary Contact Name

Owner Primary Contact Phone

Owner Primary Contact Email

BENCHMARKING

Benchmarking allows the Low Income Weatherization Program for Multifamily Properties (LIWP-MF) to monitor existing conditions, energy efficiency upgrades, and renewable energy generation for the duration of the program. As a LIWP-MF Participant, your property will be required to provide utility data to the program through the WegoWise platform to track pre- and post-retrofit energy consumption trends. This service will be provided free of charge. If your property has an existing WegoWise account, please indicate below.

Does your property have an existing WegoWise account? ☐ Yes ☐ No

If your property does not have an existing WegoWise account, LIWP-MF will need to gather information from your utility bills in order to establish a WegoWise account. In order to set up this account, please provide a username and password for online access to utility accounts in the fields below. In addition, please attach a recent month's bill for each owner-paid utility account.

	Electricity	Natural Gas	Water
Utility Name:			
Username:			
Password:			

☐ *Yes, I have attached recent copies of bills for each owner-paid utility account at this property*

REQUIRED IN-UNIT MEASURES

All LIWP-MF program participants must install the following in-unit measures as part of the scope of work to meet minimum program requirements. If the residences already comply with the specifications listed below or are not applicable, no additional work is required.

- Low flow kitchen aerators (less than or equal to 1.8 gpm at 60 psi)
- Low flow bathroom aerators (less than or equal to 1.2 gpm at 60 psi)
- Low flow showerheads (less than or equal to 1.8 gpm at 80 psi)
- Replace all incandescent and halogen bulbs with LED equivalent
- Replace any refrigerator that was manufactured on or before 1999 and is rated for 750 kWh annual consumption or more
- Duct sealing:
  - Where ducts or plenums are accessible, seal seams and connections with mastic
  - Seal supply boots to drywall with caulk
- Comply with program combustion safety requirements (see section 20)

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LOW INCOME WEATHERIZATION PROGRAM

OWNER INTENT TO PROCEED AND GOOD FAITH DEPOSIT

INTENT TO PROCEED

By signing below, Participant agrees to use best efforts to proceed with Participant's participation and installation of energy efficiency and renewable energy measures in the Low Income Weatherization Program (the Program), and Participant hereby accepts the Terms and Conditions. Participant agrees to provide the LIWP Technical Assistance Provider (TA) with on-site access to conduct an energy audit, and will work with the TA Provider to provide access to a sampling of dwelling units, common areas, and mechanical rooms, as requested for Participant's project. Within 15 calendar days from the receipt of the Program-provided energy audit report, Participant agrees to conduct a follow up call or meeting with Program representatives to discuss the upgrade opportunities. Following such call, Participant agrees to proceed in good faith to develop and finalize a program eligible scope of work and proceed with the incentive reservation form indicating which measures Participant intends to install at the property.

GOOD FAITH DEPOSIT

As a good faith deposit, Participant has attached a check in an amount determined by the size of my property (Table 1). Participant understands that this good faith deposit will be returned to Participant upon Participant's successful installation of Program-compliant measures, for which Participant will also receive the Program incentives as identified in the incentive reservation form. However, if Participant does not show progress toward the installation of Program-compliant energy efficiency measures or is inactive for over 60 days, Participant will forgo the Participant's good faith deposit.

Table 1

Number of Units	Deposit Amount
< 50 Units	$1000
50-100 Units	$1500
>100 Units	$2000

If complexities of Participant's project require more time or if unforeseen complexities cause the Participant to withdraw from participation in the Program, Participant will notify the Program in writing as soon as possible. In these circumstances, Participant's deposit may be returned at the discretion of the Program.

LOW INCOME WEATHERIZATION PROGRAM

OWNER INTENT TO PROCEED AND GOOD FAITH DEPOSIT

☐ Check here to confirm submission of good faith deposit check in the amount of: $_____

Refer to Table 1 to determine deposit amount

Please make check payable to
***Association for Energy Affordability* and mail to:**

AEA
ATTN: Low Income Weatherization Program
5900 Hollis St, Suite R2, Emeryville, CA 94608

☐ *For Non-Deed Restricted Properties Only:* Check here to indicate signee has reviewed the LIWP Affordability Covenant and will be able to agree to the terms.

☐ I authorize the Association for Energy Affordability, Inc. (AEA) to create a WegoWise account if the property does not yet have an existing account, or to access an existing account.

☐ I authorize the Program to access my building's energy usage and generation data for common area meters, aggregated tenant data, and solar PV systems as described in Section 22 of the Eligibility Requirements and Other Terms and Conditions.

_____ _____

Property Owner Signature **Date**

_____

Print Owner Name

7.4. EE Incentive Reservation and Participation Agreement Form

LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

PARTICIPANT INFORMATION

Property Name	
Property Street Address	
Property City, State, Zip	
Property Owner Company	
Primary Contact Name	
Primary Contact Phone and Email	

PROGRAM REQUIREMENTS

The Low Income Weatherization Program requires all energy efficiency projects to meet minimum requirements in order to qualify for applicable incentives. Key program requirements are summarized below.

- All Program energy efficiency projects must meet a minimum 15% energy savings threshold to be eligible for incentives. When co-leveraging funding from other rebate programs, projects may be required to meet a minimum of 25% energy savings to qualify.
- When combustion appliances are present, combustion safety testing will be performed at pre-installation and post-installation site visits in accordance with the Multifamily Home Energy Retrofit Coordinating Committee Combustion Appliance Safety Testing Protocols for Existing Multifamily Buildings (MF HERCC CAS Testing Protocols). If critical issues are identified during testing, the sampling rate may be increased at the discretion of the technical analyst. All critical issues must be corrected prior to commencement of work if issues are identified at pre-installation site visits or prior to final incentive payments if issues are identified at post-installation site visits.
- Incentive estimates are based on performance requirements as outlined in the LIWP Performance Specifications. All measures will be field verified for efficiency and installation quality. Variance in installed equipment efficiencies or installation quality from LIWP Performance Specifications may result in decreased incentives.

RESERVING YOUR INCENTIVE

To submit your project for reservation, please review the funding sources and scope of work table on the following page and sign below to acknowledge. The Program will notify you when the project is officially approved for reservation. To ensure continued energy performance compliance, notify the project's assigned Technical Analyst of any changes made to the scope of work. Changes may lower the final incentive amount or cause the property to fall out of compliance with the Program. Final incentives and any other leveraged rebates cannot exceed total upgrade costs, including materials and labor. Any disputes regarding installation and related costs are to be resolved between the participant and your contractor.

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When construction is approximately 50% complete, a Technical Analyst will conduct a quality assurance site visit to ensure that the contractor is installing the measure upgrades correctly, such that they will deliver the anticipated energy savings.

When construction is completed, the participant must initiate the incentive request process by submitting the documents listed below:

- Statement of Completion Form
- Proof of permit closure for all permits pulled for the property and required for the project
- CF-3R code forms if HERS testing/verification is required for code compliance (e.g. duct testing required with HVAC change-out)
- Documentation of measure installation costs, e.g. detailed invoices showing installation quantities, material receipts, change orders, or other documentation, as requested, to substantiate installation costs and payments.
- Property Owner W-9
- Bids, if applicable (see Section 8 of Terms and Conditions for more details)
- Documentation of all leveraged rebate funding
- Applicable warranties for water heating and heating/cooling equipment and/or Solar Thermal Operations and Maintenance and Warranty Affidavit

Technical Analyst will review these documents for completeness. Upon successful review, LIWP Implementer will schedule a site visit to confirm that installed measures match the Approved Scope. The visit may include:

- Inspection of common areas and apartments
- Verification that all equipment was installed in such a manner that the projected savings are realized
- Combustion safety testing

Following the site visit, Technical Analyst will account for any modifications to the Approved Scope of Work, and adjust the incentive accordingly. Technical Analyst will notify the participant upon successful completion of post-installation verification, prior to issuing the incentive and the return of the good faith deposit. Final incentive payment will be processed once all measures are field verified and full program documentation has been received.

AGREED UPON MILESTONE DATES

Prior to construction the project must provide all equipment submittals to program for review and approval. Participants must submit all required documentation and have measures verified and approved by Technical Analyst prior to February 28, 2021, or will be at risk of having their incentive reservation revoked.

LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

The following milestone dates are agreed upon by the participant and the Program. The participant must notify LIWP Implementer and submit documentation verifying the project has achieved each of the agreed upon milestone dates as listed below.

The participant agrees to use best efforts to meet the milestones listed below. Failure to meet the milestones may, at the discretion of LIWP Implementer, result in loss of the incentive reservation position. Projects that do not show progress toward meeting project milestones, including but not limited to procuring permits and moving forward with construction (or are inactive for over 30 days), may lose their incentive reservation position unless an exception is granted in writing by the Program. Please see Section 7 of the Terms and Conditions for more details.

Contractor(s) Selection Date	
Provision of Equipment Submittals Date	
Anticipated Construction Start Date	
Anticipated Construction 50% Completion Date	
Anticipated Construction 100% Completion Date	

LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

AGREED UPON SCOPE OF WORK AND INCENTIVE AMOUNTS

LIWP Energy Efficiency Scope of Work						
Measure Detail (see measure performance requirements for full measure and installation requirements)	Energy Savings %	Annual GHG Savings ($MTCO_2$)	Owner or Tenant Savings	Incentive per **Annual** $MTCO_2$	Completion Date	LIWP Incentive
Condensing Domestic Hot Water Boiler	4.5%	11.7	Owner	$3,000	Before 2/28/2021	$35,100
Variable Speed Pool Pump	1.3%		Owner	$3,000	Before 2/28/2021	$18,000
Common Area/Exterior LED Lighting	1.3%	1.4	Owner	$3,000	Before 2/28/2021	$154,200
Low Flow Showerheads and Aerators	1.8%	1.4	Tenant	$4,500	Before 2/28/2021	$55,800
Variable Speed Recirculation Control	1%	7	Owner	$3,000	Before 2/28/2021	$11,100
Totals	**24.6**	**89.9**				**$274,200**
Leveraged Rebate Summary						
Is this project leveraging other major rebate sources, including but not limited to IOU, REN, or CCA whole building program rebates, CSI thermal rebates, or the federal ITC for solar thermal systems? If yes, the overall scope of work must achieve a minimum of 25% modeled energy savings.						No
Is yes, list rebate programs:						

The incentive per MTCO2 reduced annually by a given measure is based on 1) when the project reserves its incentive, 2) when it completes construction, and 3) whether the measure results in energy costs savings for owner or the tenant.

- Projects with measures completed after 2/28/2018 and prior to 2/28/2021 will receive incentives of $4,500/MTCO2 for tenant savings and $3,000/MTCO2 for owner savings.

For planned phased projects, refer to the Scope of Work and Incentive Amount Table above for agreed upon phasing structure. All measures must be installed prior to 2/28/2020 to be eligible for LIWP incentives.

LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

APPROVED SCOPE OF WORK AND AGREED UPON MILESTONE DATES ACKNOWLEDGEMENT

I agree to use my best efforts to implement each measure listed in the Approved Scope of Work above, to abide by the incentive claim process outlined on the first page, and hereby accept the Terms and Conditions.

Participant Signature

Date

Date Reservation Approved by LIWP Program

Thank you for participating in the Low Income Weatherization Program. Please contact the LIWP Program Manager at LIWPinfo@aea.us.org or 510-256-5892 if you have questions or require further assistance.

7.5. PV Incentive Reservation and Participation Agreement Form

LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

PARTICIPANT INFORMATION

Property Name	
Property Street Address	
Property City, State, Zip	
Property Owner Company	
Primary Contact Name	
Primary Contact Phone and Email	

PROGRAM REQUIREMENTS

The Low Income Weatherization Program requires all solar PV installations to meet minimum requirements in order to qualify for applicable incentives. Key program requirements are summarized below.

- All PV work performed pursuant to this program must be coordinated with LIWP Implementer or the quality control contractor identified by the Program.
- The warranty requirements of all PV systems shall be the same as the warranty requirements of MASH program, including (but not limited to) a minimum 10-year manufacturer performance warranty and minimum 10-year operations and maintenance service to provide no-cost repair and replacement of the system. For complete details related to warranty and O&M program requirements, please review the LIWP PV Warranty and Performance Affidavit.
- For LIWP funded PV tenant offset systems (including VNEM applications with tenant meter allocations), a minimum 20-year inverter material warranty is required.
- All LIWP funded PV systems must be connected to a monitoring platform. The owner must agree to share this data with LIWP and Wegowise to track energy production.
- In order for a contractor to be eligible to work on a PV project receiving LIWP incentives, the contractor agrees to hire a student(s) or graduate(s) of a job training program and provide a minimum amount of Job Training Opportunities (JTO) hours. The amount of JTO and training hours required is determined by the size of the system installed. For complete details related to JTO requirements, please review the LIWP PV Workforce Training Requirements Affidavit.

RESERVING YOUR INCENTIVE

To submit your project for reservation, please fill out this form, sign, and return to your assigned technical analyst. When submitting the reservation form and supporting documents, please be sure to provide the most accurate design numbers and DC-kW system size, as changes may lower the final incentive or cause your project to fall out of compliance with the Program. To ensure continued compliance, notify your technical analyst of any changes made to the information in this form. The Program will notify you when the project is officially approved for reservation.

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LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

NEXT STEPS

The property owner must notify LIWP Implementer and submit documentation verifying the project has achieved each of the agreed upon milestone dates as listed on page 4 of this form.

PRE-CONSTRUCTION

After reservation but prior to construction, the property owner must submit the following documents to their Technical Analyst:

- Draft or fully executed Third Party Ownership Documents (ex: PPA, solar lease), when applicable, or Installation Contract for Property Owned Systems
- Equipment Cut Sheets for inverters and modules (please note: all equipment must be new and on the CEC approved list)
- PVWatts CSV Output files for both Optimal and Actual Designs
- Project Plans (as submitted to the building department)
- Bid Documents (participants are required to procure at least 2 competitive bids (see Section 8 of Terms and Conditions for more details))
- Utility Interconnection Pre-Approval Documentation

POST-CONSTRUCTION

Once the installation is complete, the property owner must initiate the incentive request process by submitting the following items to LIWP Implementer. It is recommended to begin submission of these documents as they become available.

- LIWP PV Statement of Completion Form
- LIWP PV Field Inspection Worksheet and As-Built Actual Design/Optimal PVWatts Calculation (including actual shading values)
- Project Cost Affidavit and Supporting Documents (i.e. invoices)
- LIWP PV Workforce Training Requirements Affidavit
- Property owner W-9 form
- PV Warranty and Performance Affidavit
- Documentation of all leveraged funding (MASH, ITC, LIHTC, other utility rebate documentation)
- VNEM Allocation Sheet (if applicable)
- Permission to Operate letter evidencing system interconnection
- Final Permits
- Final Project Plans including site map
- Access to third party monitoring platform data
- Executed Third Party Ownership Documents (if applicable)

The Program Administrator and Technical Analyst will review these documents for completeness. Upon successful review, the program may conduct a site visit to confirm that installed system matches the information below. Following the site visit, your Technical Analyst will account for any modifications to the approved system and adjust the incentive accordingly, and notify the property owner upon successful completion of post-installation verification, prior to issuing the incentive.

LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

PROJECT INFORMATION

PROJECT INFORMATION		
Total System Size (DC-kW)[1]		
Owner Meter System Size (DC-kW), including master metered		
Tenant Meter System Size (DC-kW)		
Virtual Net Metering	☐ **Yes** ☐ **No**	
LIWP Solar Design Factor (Actual Design / Optimal Design)[2]		
PV System Installer		
PV System will be operated and maintained by	☐ **Building Owner**	☐ **Third Party Owner**
System Owner (if different from property owner)		
System Owner Contact Person		
System Owner Contact Person's Email and Phone Number		
LIWP Minimum Energy Efficiency Requirements **Please select one of the following:**	☐ Project will meet the minimum energy efficiency requirements by performing a LIWP energy efficiency scope. ☐ Project will meet the minimum energy efficiency requirements by participating in a comparable energy efficiency program. Write in program name _____ ☐ Project is unable to meet the energy efficiency requirements and has received a waiver approval from AEA.	

IMPORTANT PROJECT COMMENTS:

[1] The size of the PV system as listed in the reservation is intended to be as close to installed as possible in order for the Program to effectively manage the pipeline. If the installed system size differs from reservation system size by greater than 20%, the project may have its incentive claim denied.
[2] See page 6 of this document for more information on the LIWP Solar Design Factor.

LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

PROJECT COST AND INCENTIVE INFORMATION

FUNDING		
Leveraged Funding		
Multifamily Affordable Solar Housing (MASH)	☐ Yes ☐ No	
Federal Investment Tax Credit (ITC)	☐ Yes ☐ No	
4% Low-Income Housing Tax Credit (LIHTC)	☐ Yes ☐ No	
Other Type of Rebates (*describe*):	☐ Yes ☐ No	
LIWP Incentive		
Incentive Type	Owner Meter PV System	Tenant Meter PV System[3]
Incentive Level per DC-W[4]		
LIWP Incentive		
LIWP PV Reservation Amount[5]		

AGREED UPON MILESTONE DATES

I, the owner of this property, agree to use best efforts to meet the milestones listed below. I understand that failing to meet the milestones without program-approved justification may result in losing the incentive reservation position. Projects that do not show progress toward meeting project milestones, including but not limited to procuring permits and moving forward with construction (or are inactive for over 30 days), may lose their incentive reservation position unless an exception is granted in writing by the Program. Please see Section 7 of the Terms and Conditions for more details.

Solar Reservation Approved Date • *Reservation form and Application Documents approved (day 1)*	
Solar Installation Contract Execution Date (<60 days of reservation date) • *Submit Copy of Executed Installation Contract to LIWP*	
Utility Interconnection Pre-Approval Date *(<120 days of reservation date)* • *Submit Copy of Pre-approval to LIWP*	
Permit Approval Date *(<120 days of reservation date)* • *Submit Copy of Approved Project Plans to LIWP*	
Construction Start Date	
Construction Completion Date • *Submit Post-Construction Documentation (listed under "Next Steps")*	
Local Jurisdiction Construction Approval Date • *Submit Copy of Final Permits to LIWP*	
Utility Interconnection Date • *Submit Copy of Permission to Operate Letter to LIWP*	

[3] Projects receiving LIWP incentives for tenant PV systems must allocate 100% of that portion of the system's generation to the residents' utility bills.
[4] Overall blended per DC-W incentive after accounting for base incentive plus reduced incentives for systems >100kW. Incentive amounts are based on the incentive table and related incentive details as provided in the LIWP Service Delivery Plan.
[5] Final incentive amounts will not exceed the approved reservation amount.

LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV
INCENTIVE RESERVATION & PARTICIPATION AGREEMENT FORM

ACKNOWLEDGE YOUR APPROVED SCOPE OF WORK

I, the owner of this property, agree to use best efforts to install the PV systems as listed in the Project Information above, to abide by the incentive claim process outlined in this form, and I hereby accept the Terms and Conditions. I understand that the incentive amount in this reservation may be reduced based on the actual system design parameters and site conditions.

Participant Signature _____ Date _____

Date Reservation Approved by LIWP Program _____

Thank you for participating in the Low Income Weatherization Program. Please contact the LIWP Program Manager at liwpinfo@aea.us.org or 510-256-5892 if you have questions or require further assistance.

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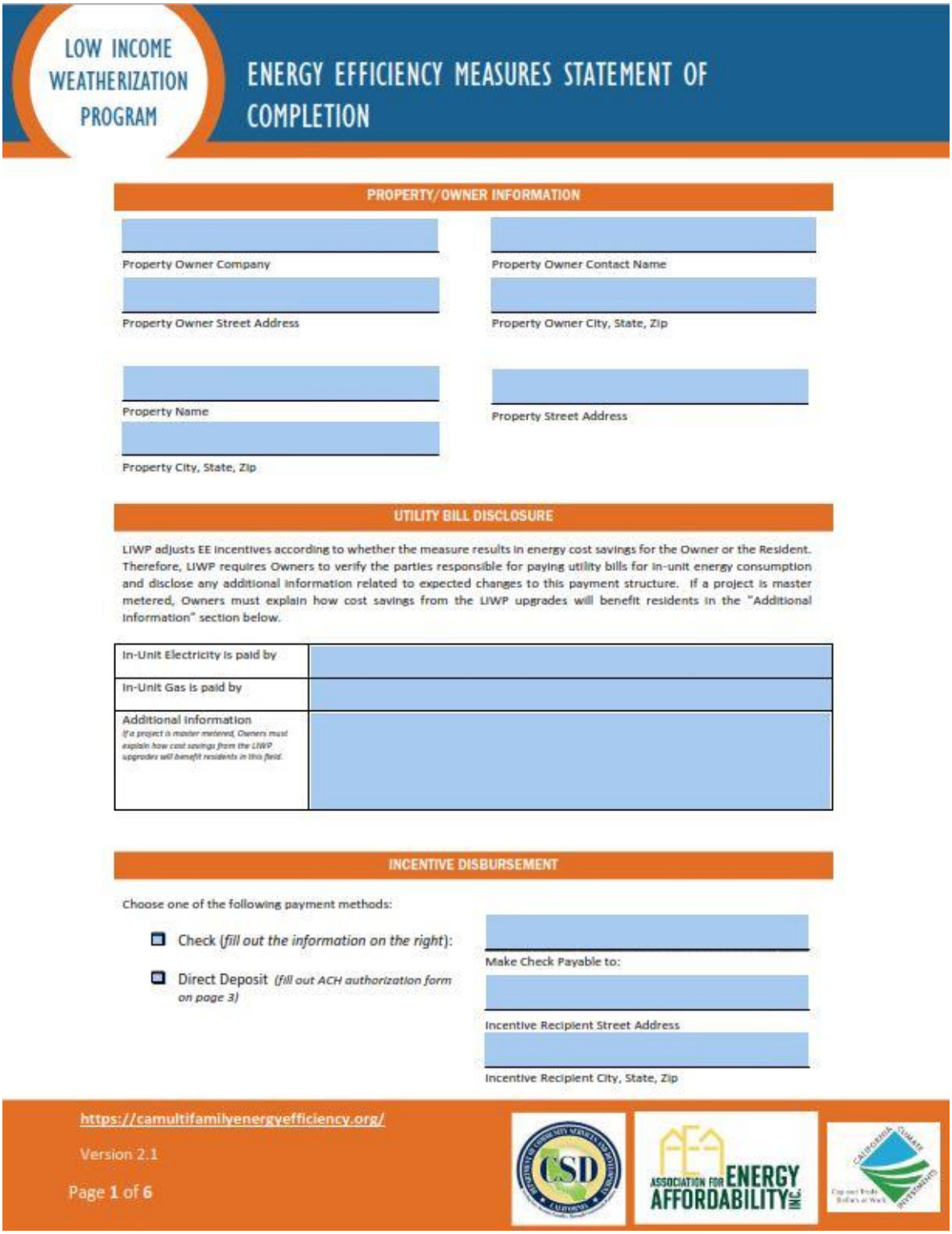
7.6. Energy Efficiency Statement of Completion



LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY MEASURES STATEMENT OF COMPLETION

PROPERTY/OWNER INFORMATION

Property Owner Company

Property Owner Contact Name

Property Owner Street Address

Property Owner City, State, Zip

Property Name

Property Street Address

Property City, State, Zip

UTILITY BILL DISCLOSURE

LIWP adjusts EE incentives according to whether the measure results in energy cost savings for the Owner or the Resident. Therefore, LIWP requires Owners to verify the parties responsible for paying utility bills for in-unit energy consumption and disclose any additional information related to expected changes to this payment structure. If a project is master metered, Owners must explain how cost savings from the LIWP upgrades will benefit residents in the "Additional Information" section below.

In-Unit Electricity is paid by	
In-Unit Gas is paid by	
Additional Information *If a project is master metered, Owners must explain how cost savings from the LIWP upgrades will benefit residents in this field.*	

INCENTIVE DISBURSEMENT

Choose one of the following payment methods:

- ☐ Check (*fill out the information on the right*):
- ☐ Direct Deposit *(fill out ACH authorization form on page 3)*

Make Check Payable to:

Incentive Recipient Street Address

Incentive Recipient City, State, Zip

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LOW INCOME WEATHERIZATION PROGRAM

ENERGY EFFICIENCY MEASURES STATEMENT OF COMPLETION

STATEMENT OF COMPLETION

The following list summarizes the forms required to process your incentive payment. Please submit all applicable forms to your Technical Analyst:

- Documentation of measure installation costs, e.g. detailed invoices showing installation quantities, material receipts, change orders, or other documentation to substantiate installation costs and payments
- All permits pulled for the property and required for the Project
- Property owner W-9 form
- CF-3R code forms, if applicable (if HERS testing is required for code compliance e.g. duct testing with HVAC change-out)
- Bids, if applicable
- Documentation of all leveraged rebate funding, if applicable
- Solar Thermal Operations and Maintenance Contract and Warranty (10 years), if applicable
- Warranties for water heating and heating/cooling equipment, if applicable

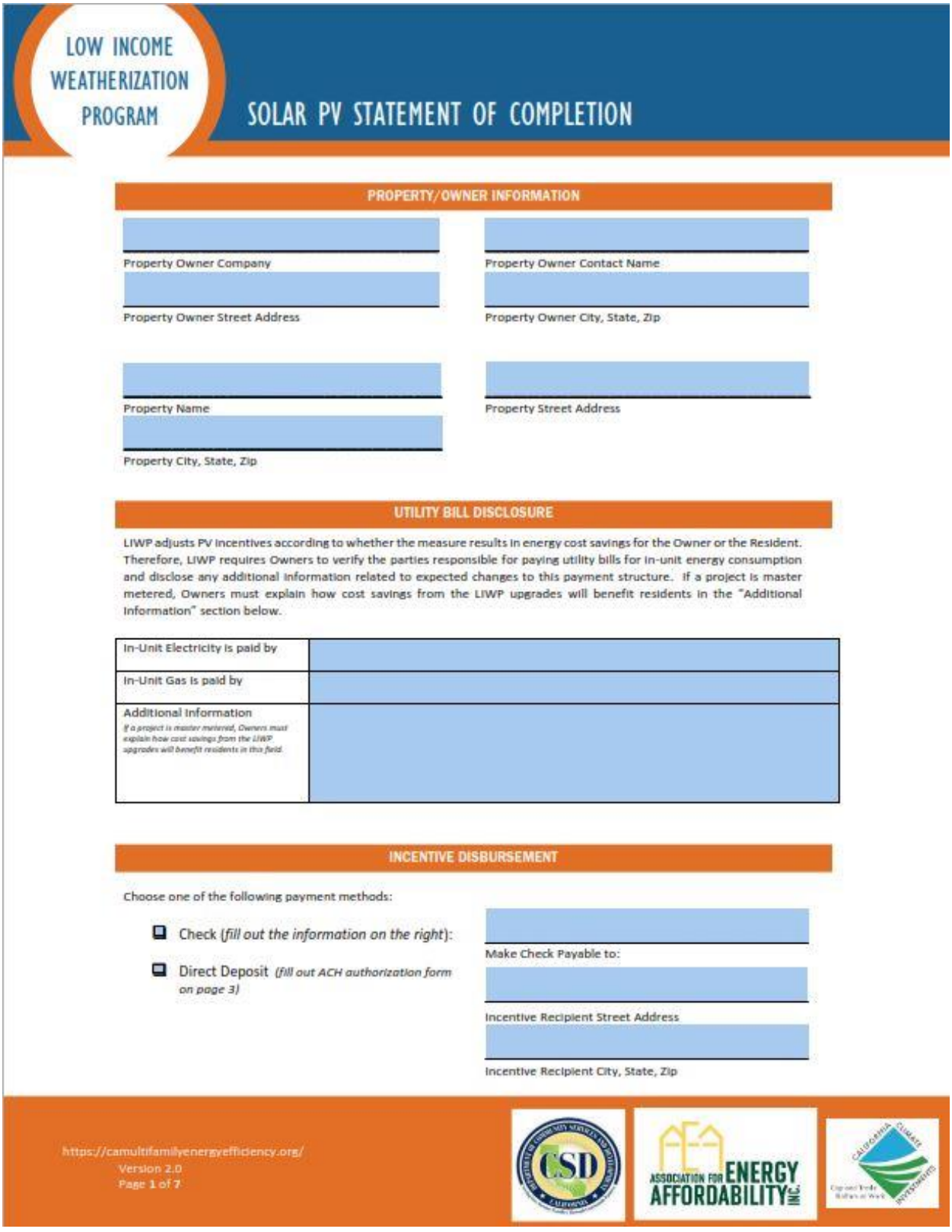
By signing below, the Owner certifies that the utility bill information provided on this form is accurate for the Project property listed above, work in the attached proposal has been completed to Program standards, and that work is covered by a one-year warranty on all parts and labor effective as of the date listed below. The Owner and Contractor are in agreement that the final incentive payment should be sent to the recipient and location listed above.

Owner Signature

Date

Notes:

7.7. PV Statement of Completion



LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV STATEMENT OF COMPLETION

PROPERTY/OWNER INFORMATION

Property Owner Company

Property Owner Contact Name

Property Owner Street Address

Property Owner City, State, Zip

Property Name

Property Street Address

Property City, State, Zip

UTILITY BILL DISCLOSURE

LIWP adjusts PV incentives according to whether the measure results in energy cost savings for the Owner or the Resident. Therefore, LIWP requires Owners to verify the parties responsible for paying utility bills for in-unit energy consumption and disclose any additional information related to expected changes to this payment structure. If a project is master metered, Owners must explain how cost savings from the LIWP upgrades will benefit residents in the "Additional Information" section below.

In-Unit Electricity is paid by	
In-Unit Gas is paid by	
Additional Information *If a project is master metered, Owners must explain how cost savings from the LIWP upgrades will benefit residents in this field.*	

INCENTIVE DISBURSEMENT

Choose one of the following payment methods:

- ☐ Check (*fill out the information on the right*):
- ☐ Direct Deposit *(fill out ACH authorization form on page 3)*

Make Check Payable to:

Incentive Recipient Street Address

Incentive Recipient City, State, Zip

https://camultifamilyenergyefficiency.org/
Version 2.0
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LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV STATEMENT OF COMPLETION

STATEMENT OF COMPLETION

The following list summarizes the forms required to process your incentive payment. Please submit all applicable forms to your Technical Analyst:

- LIWP PV Field Inspection Worksheet and As-Built Actual Design/Optimal PVWatts Calculation, including actual shading values
- Project Cost Affidavit and Supporting Documents (i.e. invoices)
- LIWP PV Workforce Training Requirements Affidavit
- Property Owner W-9 Form
- PV Warranty and Performance Affidavit
- Documentation of all leveraged funding (MASH, ITC, LIHTC, other)
- VNEM Allocation Sheet, if applicable
- Permission to Operate Letter
- Final Permit
- Final Project Plans including site map
- Executed Third Party Ownership Documents, if applicable
- ACH Payment Authorization and associated support documents – see pg. 3 of this document (if Direct Deposit is chosen)

By signing below, the Owner certifies that all of the work in the attached proposal has been completed to program standards.

Owner Signature

Date

Notes:

7.8. ACH Payment Authorization Form

LOW INCOME WEATHERIZATION PROGRAM

SOLAR PV STATEMENT OF COMPLETION

Direct Deposit Payment (ACH)

This page only needs to be filled out if you have selected Direct Deposit as a payment option. By selecting the option Direct Deposit, you authorize payments from AEA to be deposited directly into your checking or savings account. A voucher/letter detailing what the payment is for will be mailed to you. The payment will appear on your bank statement as an "ACH Credit." You agree that no prior notification will be provided. You also agree that AEA can make an ACH Debit to your account in case of an error. Please complete the form below and send with either a hard copy voided check or a letter from your financial institution detailing your account information including Routing Number (9 digits) and Account Number, to **AEA attn: LIWP Program, 5900 Hollis St, Suite R2, Emeryville CA 94608**.

ACH AUTHORIZATION

I _____ authorize The Association for Energy Affordability to deposit payments directly into the bank account indicated below. **In addition to this form, I have attached either a voided blank check or a letter from my financial institution detailing my account information including Routing Number (9 digits) and Account Number.**

Address _____ City, State, Zip _____

Phone Number _____ Email _____

ACCOUNT INFORMATION

Account Type: ☐ Checking ☐ Savings

Name on Account _____

Account Number _____

Bank Routing Number _____

Bank City & State _____

I understand that this authorization will remain effect until I cancel it, and I agree to notify The Association for Energy Affordability in writing of any changes to my account information or termination of this authorization at least 15 days prior to the next payment date. If the above noted periodic payment dates fall on a weekend or holiday, I understand that the payment may be executed on the next business day. I acknowledge that the origination of ACH transactions to my account must comply with the provisions of U.S law.

Authorized Signature _____ Date _____

7.9. Draft Terms and Conditions for Forms

ELIGIBILTY REQUIREMENTS AND OTHER TERMS AND CONDITIONS

1. DEFINITIONS. The following terms shall have the meanings set forth below:

(a) "Agreement" means, collectively, Energy Efficiency Incentive Reservation & Participation Agreement Form and these Terms and Conditions.

(b) "Assessment" means a PROGRAM-approved whole building energy audit performed by the PROGRAM-approved Service Provider, the Association for Energy Affordability (AEA).

(c) "Building" means a multifamily residence.

(d) "Combustion Appliance" means an appliance that burns combustible fuel for heating, cooking, or decorative purposes including, without limitation, space heaters, ranges, ovens, stoves, furnaces, water heaters, and clothes dryers.

(e) "Combustion Appliance Safety" or "CAS" means the test procedure for use in the Program.

(f) "Disadvantaged Communities" means census tracts throughout California that have been designated and scored by the California Environmental Protection Agency as being at or above the 75th percentile using the methodology in CalEnviroScreen 2.0 and / or CalEnviroScreen 3.0for ranking communities burdened by environmental and socioeconomic issues.

(g) "Field Quality Control Inspector" "Field QC" means an individual instructed by AEA or CSD to perform an on-site inspection of the completed SOW by qualified Contractor, verifying the proper installation of the Upgrade(s), accuracy of the test-out data and CAS results, and remediation of CAS issues or other corrective actions identified.

(h) "Participant" means the Owner or Property Manager of a Building.

(i) "Program" means the California Department of Community Services and Development (CSD) Low Income Weatherization Program – Multifamily (LIWP-MF).

(j) "Project" means the Upgrade(s) to be installed as set forth in the SOW.

(k) "Scope of Work" (SOW) refers to the work plan for the Project and describes the nature and scope of the services, the Upgrades to be installed, completion dates and other pertinent information regarding the Project. The SOW is included in the Participation Agreement/Incentive Reservation form.

(l) "Service Provider" refers to the business entity engaged by CSD to administer, implement and market the Program. AEA is the Service Provider for PROGRAM-MF.

(m) "Upgrade" shall have the meaning set forth below in Section 3.

2. ELIGIBILITY: The Program offers energy surveys, technical assistance, and financial incentives for efficiency and solar measures to Participants of multi-family residences. Incentives are available to Participants for the purchase and installation of energy efficiency measures and PV systems at the location where the qualifying project is to be installed. Properties must meet affordability requirement of at least 66% of households at or below 80% of Area Median Income and must be located in a Disadvantaged Community.

3. QUALIFYING PROJECTS AND MEASURES: Qualifying LIWP projects include electric or gas energy efficiency measures identified as eligible for incentives by the LIWP Implementer based on an energy survey of the building. Qualifying projects do not include any electric or gas energy efficiency measures or energy efficiency equipment or services purchased, contracted for, or installed prior to signing the Program's intent to proceed form. Properties must install energy improvements that equate to at least 15% energy savings above existing conditions to receive Program incentives. Project-specific waivers may be granted to waive this requirement at the discretion of the program. Program incentives plus additional leveraged funds may not exceed the actual cost of the Scope of Work. If Program incentives plus additional leveraged funds exceed the actual cost of project, the Program incentives will be reduced accordingly.

4. OWNER APPLICATION/PARTICIPATION AGREEMENT: By signing the Incentive Reservation & Participation Agreement Form, Participant authorizes AEA to access the building's energy usage for the previous 12-24 months, monitor energy usage post-retrofit, and to enter this building for the purposes of conducting an energy survey of the building's common area and individual apartment units, inspecting installed measures and evaluating the performance of installed measures. Additionally, by signing the Incentive Reservation & Participation Agreement Form, the Participant agrees to provide their consent to share their project information with the Program and its authorized third-party representative. By signing the Incentive Reservation & Participation Agreement Form, the Participant also agrees to maintain affordability for this property for a minimum of ten years' post retrofit, per the terms of the Affordability Covenant, and authorizes AEA to notify residents about the Affordability Covenant.

5. INCENTIVE AMOUNTS: The amounts of the incentives for which qualifying projects are eligible are set forth in the Incentive Reservation and Participation Agreement provided to the Participant and signed by the Participant. Variances in work scope details that occur after the Incentive Reservation and Participation Agreement has been signed may result in a decrease in the final incentive amount. If variances in work scope details occurring after the Incentive Reservation and Participation Agreement has been signed would result in an increase in the final incentive amount, an updated Incentive Reservation and Participation Agreement must be submitted and approved to authorize incentive increases.

Final incentive amounts will be based on the submission of a completed Statement of Completion by the Participant with all required documentation, in addition to the Program's post-construction verification of the upgrade.

6. PARTICIPANT WORK AUTHORIZATION AND PROJECT WORK PLAN: AEA will meet with the Participant to discuss individual building objectives, provide information on alternatives, discuss process and create a work plan and schedule. The Participant may select one or more contractors so long as they cooperate with the quality assurance and quality control provisions of the Program. AEA may monitor the required installation services.

7. IMPLEMENTATION OF WORK AND PAYMENT OF INCENTIVES: AEA will need to see that the project remains on track and know when the project is close to completion in order to schedule the free verification site visits, which are required before the incentive can be claimed. Due to the high demand for this Program, projects must show continuous progress toward completion. Projects that do not show progress toward meeting project milestones, including but not limited to procuring permits and moving forward with construction (or are inactive for over 30 days), may lose incentive reservation position unless an exception is granted in writing by the Program. Projects may rejoin the reservation queue if this happens. If complexities of the project require more time, the Participant must notify AEA in writing with a proposed schedule and request an exception. Should projects fail to meet the above timeline, the Program will retain the Good Faith Deposit. Upon completion, AEA will schedule and conduct a post-installation inspection to ensure satisfactory measure installation. When AEA confirms that installation of a specific measure is satisfactorily completed, all required documentation is collected from the Participant, and Participant is in compliance with all the Terms and Conditions, the Program will arrange for payment of the incentive for that measure to the Participant.

8. PROCUREMENT: Participants may work with any contractor(s) they choose, provided that they meet the contractor requirements listed under section 17. To avoid excessively high costs, AEA may review bids from all contractors performing work under the Program. If total costs for performing Program work scope fall within 10% of Program incentives, Program requires participants to submit documentation that at least 2 bids were received on the 3 highest cost measures to show cost justification and reasonableness.

9. PARTICIPANT INFORMATION: Participant agrees that the Program may provide Participant information including Participant name, account number, electric, gas, and/or water consumption data and electric, gas, and/or water savings to a third party evaluation contractor selected by CSD for program evaluation purposes. The evaluation contractor will keep Participant information confidential. Participant information may also be provided to CSD.

10. TAX LIABILITY and CREDITS: The Program is not responsible for any taxes which may be imposed on the Participant as a result of measures installed under this program.

11. DISPUTES: Participants are encouraged to contact the Program Manager (LIWPinfo@aea.us.org) if any problems or concerns arise. Additionally, complaints regarding customer service may be directed to CSD at LIWP.LMF@csd.ca.gov. The Program will have sole discretion to decide on the final resolution of any issues including but not limited to eligibility or incentives.

12. PROGRAM CHANGES: The Program reserves the right to change, modify, or terminate this program at any time without any liability except as expressly stated herein. The Program will honor all written commitments made in Scope of Work provided to Participants prior to the date of any change, modification or termination of this program, provided that project installations are fully completed within the time specified in the Scope of Work.

13. PROGRAM EXPIRATION: This Program will expire upon the earliest to occur: (i) June 30, 2021, (ii) when funds are depleted, or (iii) when the Program is terminated.

14. NO WARRANTY: The Program makes no representations or warranties, expressed or implied, and does not guarantee that implementation of energy-efficiency measures or use of the equipment purchased or installed pursuant to this Program will result in energy cost savings. The savings projections will be used solely to qualify the project and to calculate the Program incentive. The Program does not guarantee that the project will realize the exact savings projected. Any recommendations made by the Program, if implemented by the Participant, should not be construed as an assurance or warranty of energy consumption, energy use savings or reduced building operating costs or of the continuing safety, performance or cost-effectiveness of any equipment, product, system, facility, procedure, or policy discussed or recommended by the Program. The Participant acknowledges that any changes in energy costs that may be experienced by Participant will be affected by fuel prices, weather patterns, occupant behavior, maintenance activities and additional factors.

15. PARTICIPANT'S INDEPENDENT JUDGEMENT AND RESPONSIBILITY: Participant is responsible for design and implementation of the Project. The Program's review of the design, construction, operation or maintenance of the Project, energy efficiency measures, does not constitute a representation of any kind regarding the Project Measures, including their economic or technical feasibility, operational capability, or reliability.
The Participant is solely responsible for the economic and technical feasibility, operational capability, and reliability of the Project and measures. The Program is not responsible for and shall not be liable for injury to or death of any person or damage to any property (including the Building) in connection with the Program. In no event will the Program be liable for any incidental, special or consequential damages. Participation in this Program is voluntary and there is no obligation to purchase any specific product or service. In order to receive an incentive through the Program, products must meet minimum performance standards.

16. INDEMNIFICATION: The Participant shall protect, indemnify, defend, and hold harmless the Program (including California Department of Community Services and Development, Association for Energy Affordability, GRID Alternatives, California Housing Partnership Corporation, and TRC Energy Services) from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, attorney's fees and expenses) imposed upon or incurred by or

asserted against the Parties resulting from, arising out of or relating to the performance of this Agreement. The obligations of the Participant under this section shall survive any expiration or termination of this Agreement.

17. CONTRACTOR AND PROJECT PERMIT REQUIREMENTS: It is the Participant's responsibility to ensure that their installation contractors meet the following requirements: Contractors installing the work in the Approved Scope must hold and maintain 1) Appropriate contractors' licenses required by the State of California Contractor's License Board to perform the class and type of work required, 2) General Liability and Worker's Compensation Insurance, and 3) a Business License if required in the jurisdiction where work is to be performed. The Participant must also ensure that its contractor requires any and all subcontractors meet the same requirements. The Participant must certify the improvement and installation has complied with all applicable permitting requirements. Proof of permit closure is required for all central air conditioning and heat pumps (including AHUs, split, and packaged units), and their related fans.

18. INSTALLATION AND EQUIPMENT REQUIREMENTS: All work must be in full compliance with the requirements of applicable laws, rules and regulations of authorities having governmental and regulatory jurisdiction. Additionally, work performed pursuant to this Program must be overseen by AEA or other contractor identified by the Program. The Participant or any Contractor carrying out installation of measures under this program shall remove and dispose of any and all equipment or materials that are replaced or removed in accordance with all applicable laws, rules and regulations. Eligible energy efficiency improvements must be compliant with the minimum performance specifications provided by the Program. Any losses of equipment are not the responsibility of the Program and the Program will only provide incentives for the costs associated with the newly installed equipment.

19. WORKFORCE DEVELOPMENT REQUIREMENTS: The project must adhere to the workforce development (WFD) requirements as required by the Program. The Participant and Installation Contractor(s) must submit all required WFD documentation at the completion of the project.

20. COMBUSTION SAFETY REQUIREMENTS: If, during the course of the Assessment of the Project or Building(s), and/or performing and verifying the installed measures, AEA or Participating Contractor encounter or detect the presence of natural gas or other hazardous materials (collectively, the "Hazardous Condition") at, in and/or near a Combustion Appliance, the local Gas Utility may shut off gas service in tenant units or common areas until the Hazardous Condition is remediated by Participant at Participant's sole cost and expense. Participant and its Participating Contractor will be required to promptly stop any further work on the Project (if underway at the time the Hazardous Condition is detected). The Gas Utility or its designated representative will investigate for the presence of the Hazardous Condition and inform the Participant, AEA and Participating Contractor of the results of the evaluation of the Hazardous Condition. Participant, Participating Contractor or representative will not resume any work on the Project until the Hazardous Condition has been removed, disposed of, abated or remediated in compliance with all applicable laws, rules, and regulations and to the Gas Utility's reasonable satisfaction.

21. HEALTH AND SAFETY: The Participant accepts the responsibility that the property is compliant with all health and safety standards (including law requiring installation of CO alarm). The Participant must certify that all combustion safety related required repair actions identified during the post-installation site visit have been addressed in accordance with the Program's Combustion Safety Protocols in the Service Delivery Plan, and take responsibility and future liability for all hazards identified during the pre- and post-installation site visits. The Program will not be liable for damage to occupants or other parties as a result of products or equipment installed by the Participant's contractors as part of participating in the Program.

7.10. Affordability Covenant Form

LOW INCOME WEATHERIZATION PROGRAM

Property Affordability Covenant

PARTICIPANT INFORMATION

Property Name _____ Property Address (Street, City, State, & Zip) _____

PROPERTY AFFORDABILITY COVENANT

I. Overview

In order for a property to receive Low Income Weatherization Program (LIWP) incentives, the property must confirm that at least 66% of households are at or below 80% Area Median Income (AMI)[1].

Additionally, the Participant will endeavor to maintain affordability of the property's rental units for a period of 10 years as a condition of receiving property improvement funds as part of LIWP. See the Other Requirements section below for additional details.

II. Demonstrating Low-Income Eligibility with Regulatory Agreement

Option 1: Regulatory Agreement

To demonstrate low-income eligibility, the simplest method is for properties to provide proof of a rent regulatory agreement with federal, state, or local agencies identifying that at least 66% of households are at or below 80% AMI. The regulatory agreement must continue to be in place for at least 10 years after receipt of LIWP incentives (i.e. 10 years after the energy improvements are completed). For properties with less than 10 years remaining on the regulatory agreement, see following paragraph.

In instances where property has less than 10 years remaining on the regulatory agreement, in order to receive LIWP incentives, the owner agrees to extend the affordability requirement at the property such that 66% of households are ≤ 80% AMI for a total period of 10 years. Owner signature to this document confirms agreement that the property will provide at least this minimum level of affordability after expiration of the regulatory agreement.

III. Demonstrating Low-Income Eligibility without a Regulatory Agreement

For properties that do not have such regulatory agreements, there are three pathways for demonstrating income eligibility for the property through one or a combination of the following[2]:

Option 2: Income Documentation

Provision of pay stubs and/or annual tax returns showing at least 66% of households are ≤ 80% AMI.

[1] See https://www.huduser.gov/portal/datasets/il/il16/index_il2016.html to see AMI levels by County.
[2] For properties with regulatory agreements that apply to less than 66% of the households, income eligibility can be confirmed for the remaining units with any or all of the three listed options such that 66% of all households meet the affordability requirements.

Option 3: Public Assistance Program Documentation

Provision of document showing households participate in public assistance programs or receive benefits primarily available to those with income levels ≤ 80% AMI. This includes, but is not limited to the following:

Section 8 Project-Based Rental Assistance Housing Assistance Payment (HAP) Contract or Project-Based Voucher (PBV) Contract *(Note: Only applies if owner is a public housing authority or 501c3 non-profit housing organization)*	Section 8-Housing Choice Voucher Program (HCVP) *(Owner provides list of units that receive a voucher)*
	Low Income Home Energy Assistance Program (LIHEAP)
Head Start Income Eligible (Tribal Only)	Medi-Cal for Families (Healthy Families A&B)
CalFresh/SNAP (Food Stamps)	Free and Reduced-Price Meals in Child Nutrition Programs
Bureau of Indian Affairs General Assistance	CalWORKs (TANF) or Tribal TANF

Participants that income-qualify any units under Option 3 using a HAP or PBV contract must notify the LIWP Service Provider and CSD no less than 30 calendar days prior to the expiration of the HAP contract or from formal notice to HUD or the public housing authority of owner's decision to opt out of contract renewal.

Option 4: Rent Affordability Standard[3]

In housing serving lower income households, gross rents paid (rent charged plus the utility allowance) cannot exceed 30% of household income for the housing to be deemed affordable. In lieu of demonstrating income eligibility using Option 1 or 2 above, a property may choose to proceed with the Rent Affordability Standard pathway.

Properties choosing to use the Rent Affordability Standard to confirm income eligibly must follow the following procedures and must agree to the following requirements upon executing an Incentive Reservation and Participation Agreement.

Rent Affordability Standard Procedures:

1. Identify AMI for the property as determined by the U.S Department of Housing and Urban Development (HUD) published AMI levels for the County. The number of persons in each will be determined by using the following Household Occupancy Criteria to determine AMI level based on dwelling unit type:

   Studio – 1 person; 1 Bedroom – 2 persons; 2 Bedroom – 3 persons; 3 Bedroom – 4 persons

2. Identify PHA schedules for the county in which the property is located to determine applicable utility allowances.

3. Identify Rent Affordability Standard, which is the monthly affordable rent for a household with an income at 80% of the AMI. The program will provide a worksheet summary for your property that calculates this rental amount. The formula for this calculation is:

[3] This option may only be used for properties within a DAC or AB1550 Low Income Community

$$\text{Rent must be} \leq \left[\frac{[80\% \text{ of AMI}] \times 30\%}{12} - Monthly\ Utility\ Allowance \right]$$

4. The program will evaluate the rent levels of each unit type in the candidate property against the Rent Affordability Standard. The property will be eligible for the program only if at least 66% of the units therein have rent levels less than or equal to the Rent Affordability Standard and the owner agrees to maintain this standard for the term of the agreement.

Rent Affordability Standard Requirements:

The Participant must submit documentation to support project eligibility. This documentation includes:

1. A list of rental units by unit type and the maximum rent level set for each unit type on the property
2. A certification by the Participant that the reported rent levels are accurate. Owner signature to this document confirms that the reported rent levels that were provided, and are affixed to this document, are accurate.
3. Participant signature to this Covenant serves as agreement that the property will ensure that rent levels in at least 66% of units will remain at or below the rent affordability standard for at least ten (10) years, and that notification will be provided to tenants of the property's participation in LIWP-MF no less than thirty (30) calendar days prior to the start of construction. The calculation of future years' Rent Affordability Standard will be based on the AMI for that year as set by HUD. The income limits are based off of a geography's median income, which is calculated using data from the U.S. Census Bureau's American Community Survey.

Option 5: Office of Migrant Services (OMS) Migrant Centers

Provision of document showing property is an active OMS Migrant Center and households participate in affordable seasonal rental housing for migrant farmworker families primarily available to those with income levels less than 80% AMI. Participants must notify the LIWP Service Provider and CSD no less than 30 calendar days prior to changes to the property occupancy and affordability requirements.

OTHER REQUIREMENTS

1. The participant agrees not to evict or commence any eviction proceeding against any tenant(s) of any qualifying dwelling unit in the building, except for cause and subject to all legal requirements and procedures for any such eviction and/or proceeding. This restriction is in force for a period of not less than ten years. This period commences on the date provided by the date the Incentive Reservation Participating Agreement (IRPA) is executed.

2. For qualifying dwelling units subject to statutorily authorized rent control or rent stabilization, this agreement does not prohibit the owner from receiving approval for standard, periodic, incremental rent increases granted by the local rent control guidelines board.

3. The Participant agrees that the rents for the qualified low-income dwelling units shall not be increased because of the solar and/or energy efficiency upgrades and major capital improvements included as part of the LIWP Incentive Reservation and Participation Agreement.

4. For properties using Options 1-3, the owner agrees that any dwelling units which are designated as vacant as of the effective date of the Incentive Reservation and Participation Agreement, shall be rented

to or occupied by a household at an income level such that at least 66% of households residing at the property earn less than 80% AMI. Properties with an existing regulatory agreement that already meets the rent and occupancy requirements at IRPA will be considered to be in compliance as long as property is in compliance with the regulatory agreement. For properties using Option 4, the owner agrees that any dwelling units which are designated as vacant as of the effective date of the Incentive Reservation and Participation Agreement (IRPA) shall be rented at a price such that at least 66% of the property's units will be rented at or below the Rent Affordability Standard.

OWNER DECLARATION

The property meets the Low Income Weatherization Program (LIWP) affordability requirements via:

- ☐ Option 1 Regulatory Agreement: I have attached the property's regulatory agreement.

  Type of Regulatory Agreement: _____

  Compliance Years Remaining on Agreement: _____

- ☐ Option 2 Income Verification: I have provided provision of pay stubs and/or annual tax returns demonstrating that households are ≤ 80% AMI to the program, and confirm that the attached income verification summary (when applicable) is accurate.

- ☐ Option 3 Public Assistance Program Documentation: I will notify the LIWP Service Provider and CSD 30 calendar days prior to the expiration of the HAP or PBV contract, or from formal notice to HUD or the public housing authority of owner's decision to opt out of contract renewal.

  HAP or PBV Expiration Date: _____

- ☐ Option 4 Rent Affordability Standard: I have provided the supporting documents to the program and confirm that the attached (when applicable) Rent Affordability Standard is accurate.

- ☐ Option 5 OMS Migrant Centers: I have provided the supporting documents to the program and confirm that the property is an active OMS Migrant Center.

I understand the ability to access future funding from CSD will be evaluated based on the Participant's adherence to this Affordability Covenant.

By signing below, I agree with the above requirements, as they are applicable to my property.

_____

Property Owner Signature Date

_____

Print Owner Name

_____

Owner Company

7.11. Performance Specification Example

CALIFORNIA AVE APARTMENTS
GENERAL MINIMUM PERFORMANCE REQUIREMENTS

Instructions: The contractor and building owner are to read the following document and sign the final page verifying that they understand and agree to adhere to the requirements detailed herein.

Project Address: 150 Alpine Drive, Oakland, CA
Project Participant: Bob Smith, (510) 888-8888

Technical Services Contact:	Association for Energy Affordability
Attention:	Jessica Tse
Phone #	510-270-4956
E-mail:	jtse@aeanyc.org

General
The following document defines the **minimum** performance requirements to receive an incentive under the Low Income Weatherization Program (LIWP). Bidders are responsible for reviewing the requirements and for determining any variances that may be required for a complete, functional, code-compliant system. Requests for variances must be requested in writing prior to installation of equipment and should be directed to The Program contact and the building Participant.

Variances that have not been pre-approved may disqualify installed measure from receiving incentive.

Where indicated, the document also outlines **recommendations** which are *not* required to receive incentive but have been included for consideration by contractor and Participant for inclusion in project.

The contractor shall be responsible of notifying the building Participant in writing of any materials or apparatus believed inadequate or unsuitable, in violation of codes, laws, or ordinances, rules or regulations of authorities having jurisdiction, and any necessary equipment, items or work missing in the scope of work which shall be present to system from operating properly. In absence of such written notice, the contractor and Participant mutually agree that the contractor has included, in the submitted bid to the Participant, the cost for all the required items to make the specified work properly.

Incentive and Documentation
A final quality assurance and site inspection will be performed on every project by LIWP technical services staff after receiving notification of construction completion.

The building Participant or contractor will provide the technical services staff copies of final invoices when requested.

Code Compliance, Permits, and Signoffs
All work shall be in strict accordance with all applicable City, State, and Federal, Codes, rules and regulations. Prior to commencement of work, Contractor is required to file and obtain all permits as required by agency having jurisdiction and at completion of work shall provide building participant all required signoffs' from all agencies having jurisdiction over the work specified herein. Contractor shall finish the work, as applicable with the agencies/departments of the city or county having jurisdiction, under the current codes and regulations of same, and copies shall be provided to Participant upon filing.

Statement of Work Requirements
Contractor's scope shall include all materials, equipment, and services necessary for and reasonably incidental to the performance of the installed measure.

All materials used on project shall be new. All labor being provided on this project shall be performed by workmen who regularly perform this specific type of work and they shall be licensed where required.

Work shall be of commercial quality, meet all manufacturers' installation requirements, and will be performed in such a manner to ensure installed measure performs for the duration of its expected useful life.

Demolition and Disposal Requirements

All replaced or abandoned equipment and any and all materials considered waste during the course of the work will be removed from site and disposed of in accordance with all applicable laws.

Hazardous Materials

Lead, asbestos, and other hazardous materials have not been inspected or tested by the LIWP Technical Assistance Providers or its subcontractors. It is the Participant and Contractor's responsibility to test for and include in scope of work any necessary abatement, permits, and filing required to complete the scope of work.

Installation Manuals

Contractor shall furnish two complete sets of neatly bound installation manuals and instruction manuals for all equipment installed as part of LIWP, including operating instructions, wiring diagrams, and suggested regular maintenance to the building Participant.

Warranty

Contractor shall furnish a written guarantee of all equipment with this bid, and shall guarantee all equipment and labor for a minimum of one year, from the date of the final acceptance of the equipment.

Current Incentive Basis of Performance:

The Program incentive amount is based on the following scope assumptions. Where installed quantity or equipment will be different than estimated value, the contractor or building Participant may submit updated quantity or equipment submittals to The Program's technical staff to generate a new incentive estimate prior to construction.

> Replace one existing standard efficiency boiler with 96% efficiency condensing boiler (based on AHRI rating, or equivalent).

General Requirements

Boiler:	High efficiency condensing DHW boiler with thermal efficiency of ≥ 96% (based on AHRI rating or equivalent).
Boiler Controls:	Boiler(s) shall be programmed such that boiler circulator(s) only run during a call for heat or to fire based on tank temperature.
Condensate neutralization:	A condensate neutralizer filter/kit will be installed at location prior to condensate disposal to drain.
System Sizing:	System should be sized to match DHW load of building. System sizing, piping configuration, and tank temperature setpoint will be designed to ensure condensing operation of boiler (i.e. cold water inlet piped into boiler return and tank temperature setpoint ≤ 140°F). Contractor will provide building Participant and technical assistance representative equipment submittals and documentation regarding how system was sized at least 2 weeks prior to ordering equipment.
Pipe Insulation:	All new and existing uninsulated domestic hot water piping and domestic hot water storage tanks in the boiler area are to be insulated to Title 24 minimums (See Attachment A). In addition to hot water pipes, all piping and fittings attached to domestic hot water storage tank (cold, T&P, etc) are to be insulated for a minimum of 3' away from tank.
Piping Insulation Material:	Pre-formed mineral fiber (fiberglass), with factory-applied all-service jacket with integral vapor barrier, UL listed.
Boiler Installation:	Boiler shall be installed in accordance with manufacturer's technical literature, and applicable codes and standards.

Additional Recommendations

Mixing Valve:	It is recommended to install an anti-scald mixing valve on all systems. If stored water temperatures will be above 120°F system must have mixing valve.
Boiler Venting	Boiler venting material and installation shall be per manufacturer's recommendations. Intake air must be pulled from exterior of building when chemicals such as pool supplies or pool equipment are present in room.
Piping	Near boiler piping will be reconfigured as necessary to meet manufacturer's piping recommendations. Condensate supply shall be routed into cooler return to maximize boiler condensing operation. Locate all pipe fittings minimum of 6" away from the boilers, and lay out piping so it does not interfere with service access or block access between the units, or in the removal of access panels.
Ball Valves	Full port, Teflon or EPDM seats, with stem extension to accommodate pipe insulation. Valves are to be considered "lead-free" per most recent CA code.
Misc.	Clean, flush, disinfect per standard procedures, before putting piping into service. Install additional drains, service valves, and temperature gauges as required for the system to be filled, drained, and monitored for proper operation.
Pipe Hanging	All piping must be fully supported. Use pipe hangers at a minimum of 4 foot intervals. Install hangers so that in no case is the weight of piping supported by connected equipment. In no case shall one pipe be hung from another pipe. Where insulated piping is attached to hangers, the attachment shall be outside the insulation, with the insulation remaining in place between the hanger and the pipe, with no break in the insulation. Use galvanized steel shield to protect the insulation.
Boiler Commissioning	Commissioning and start-up should be supervised by an authorized manufacturer's representative. During start up confirm combustion flue gases fall within boiler manufacturer's guidelines using combustion analyzer.

Instructions: Participant and Contractor please fill out all fields below:

BUILDING PARTICIPANT NAME	PROJECT ADDRESS
BUILDING PARTICIPANT PHONE #	CITY STATE ZIP CODE
BUILDING PARTICIPANT EMAIL	
CONTRACTOR NAME	CONTRACTOR COMPANY NAME
CONTRACTOR PHONE #	CONTRACTOR EMAIL

By signing below, the contractor and Participant agree to all of the requirements outlined in this document.

BUILDING PARTICIPANT SIGNATURE	DATE
CONTRACTOR SIGNATURE	DATE

7.12. Solar PV Workforce Training Affidavit

LOW INCOME WEATHERIZATION PROGRAM

LIWP PV Workforce Training Requirements Affidavit

CONTRACTOR INFORMATION

Contractor Name	
Contractor Street Address	
Contractor City, State, Zip	
Contractor CA License No.	
Property Owner Primary Contact Info	

INSTRUCTIONS

Prior to project start, the PV contractor/installer ("Contractor") reviews the Low Income Weatherization Program (LIWP) job training requirement information in this affidavit. After installation is complete, the contractor submits a completed version which would include the job trainee's signature and information to the LIWP team.

WORKFORCE TRAINING REQUIREMENTS

In order for a contractor to be eligible to work on a PV project receiving LIWP incentive, the contractor agrees to hire a student(s) or graduate(s) of a job training program[1] and provide Job Training Opportunities (JTO) hours. The training can be completed via direct solar installation or in a support role on the specific LIWP solar project indicated in the Project Address below, including but not limited to project installation, project design, project engineering, or project coordination.

The Contractor is responsible for hiring the job trainee(s) for each LIWP installation and will need to provide the corresponding LIWP Administrator with the names of the eligible job training program and job trainee(s) used for each LIWP installation. A current contractor employee who graduated from an eligible job training program within 12 months of the LIWP installation project and been employed with the installer for 3 months or less would fulfill the workforce partnership requirement to participate as one of the trainees.

For time spent on each LIWP installation, contractor must pay job trainee(s) at a rate consistent with the contractor's entry level or temporary worker wage.

Contractor's insurance must cover the employment of the LIWP job trainees, including temporary hires if the job training organization/program does not provide liability coverage for its trainees.

The JTO hours are set forth in the following table:

System Size (DC-kW)	Job Training Opportunities
0 -10kW	1 JTO and no less than 16 hours
10 kW-<30 kW	2 JTOs and no less than 16 hours each Trainee
30 kW-<100 kW	2 JTOs and no less than 24 hours each Trainee
100+ kW	3 JTOs and no less than 40 hours each Trainee

[1] Eligible job training programs include those offered by a California Community College or other PV-training programs offered to the public by local government workforce development programs, community non-profits, private enterprises, or the electrical workers union with 40+ hours of instructional and/or hands-on PV installation and design training.

LIWP PROJECT INFORMATION

Project Name	Name of Property Owner
Project Street Address	Project City and Zip
Project Size (DC-kW)	Number of Job Trainee

JOB TRAINEE 1 INFORMATION

Job Trainee Name	
Job Trainee Address	City and Zip
Phone Number	Email
Job Training Organization (if applicable)	Job Training Organization Address
Date of Training Program Completion (if graduated)	

Type of LIWP installation work and assistance performed by the job trainee:	**Dates and Hours Job Trainee Worked on LIWP Project:**
☐ Direct solar PV installation ☐ Project Design	Date Hours Worked
☐ Project Engineering ☐ Project Coordination	Date Hours Worked
	Date Hours Worked
	Date Hours Worked
	Date Hours Worked

JOB TRAINEE 2 INFORMATION

Job Trainee Name

Job Trainee Address | City and Zip

Phone Number | Email

Job Training Organization (if applicable) | Job Training Organization Address

Date of Training Program Completion (if graduated)

Type of LIWP installation work and assistance performed by the job trainee:	**Dates and Hours Job Trainee Worked on LIWP Project:**
☐ Direct solar PV installation ☐ Project Design	Date Hours Worked
☐ Project Engineering ☐ Project Coordination	Date Hours Worked
	Date Hours Worked
	Date Hours Worked
	Date Hours Worked

JOB TRAINEE 3 INFORMATION

Job Trainee Name

Job Trainee Address | City and Zip

Phone Number | Email

Job Training Organization (if applicable) | Job Training Organization Address

Date of Training Program Completion (if graduated)

Type of LIWP installation work and assistance performed by the job trainee:	**Dates and Hours Job Trainee Worked on LIWP Project:**
☐ Direct solar PV installation ☐ Project Design	Date Hours Worked
☐ Project Engineering ☐ Project Coordination	Date Hours Worked
	Date Hours Worked
	Date Hours Worked
	Date Hours Worked

CONTRACTOR AFFIDAVIT

Did your company hire or have plans to hire any of the job trainees as full-time employees after this JTO?

☐ Yes ☐ No

If yes, please list the trainees' names including position and title.

_____

_____

By participating in the LIWP Program as a Contractor, I understand and agree to the LIWP Program rules and the LIWP Contractor guidelines referenced and described herein about the job training requirement.

I certify that I am authorized to sign this Affidavit. I also declare under the penalty of perjury, under the laws of the State of California, that all of the information in this Affidavit is true and correct to the best of my knowledge.

Name of Contractor Representative: _____ Title: _____

Signature (Contractor):_____ Date:_____

JOB TRAINEE 1 AFFIDAVIT

By participating in the LIWP Program as a Job Trainee, I understand and agree to the LIWP Program rules and the LIWP guidelines referenced and described herein about the job training requirement.

I certify that I am authorized to sign this Affidavit. I also declare under the penalty of perjury, under the laws of the State of California, that all of the information in this Affidavit as it applies to Job Trainee # 1 is true and correct to the best of my knowledge.

Name of Job Trainee _____ Title:_____

Signature (Job Trainee):_____ Date:_____

☐ Check this box if you would like to be contacted by nonprofit organization GRID Alternatives and receive more information about solar jobs and resources.

JOB TRAINEE 2 AFFIDAVIT

By participating in the LIWP Program as a Job Trainee, I understand and agree to the LIWP Program rules and the LIWP guidelines referenced and described herein about the job training requirement.

I certify that I am authorized to sign this Affidavit. I also declare under the penalty of perjury, under the laws of the State of California, that all of the information in this Affidavit as it applies to Job Trainee # 2 is true and correct to the best of my knowledge.

Name of Job Trainee _____ Title:_____

Signature (Job Trainee):_____ Date:_____

☐ Check this box if you would like to be contacted by nonprofit organization GRID Alternatives and receive more information about solar jobs and resources.

JOB TRAINEE 3 AFFIDAVIT

By participating in the LIWP Program as a Job Trainee, I understand and agree to the LIWP Program rules and the LIWP guidelines referenced and described herein about the job training requirement.

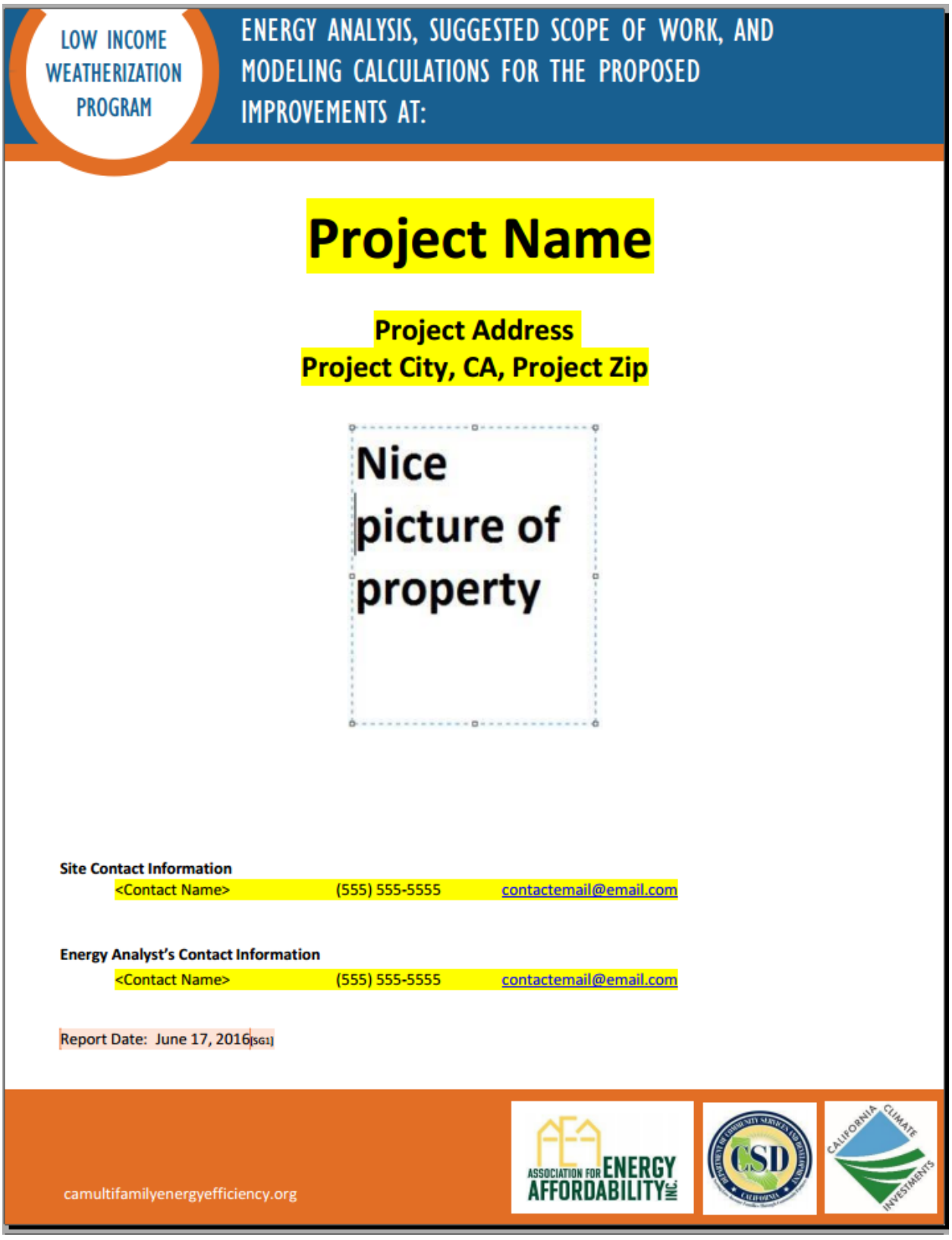
I certify that I am authorized to sign this Affidavit. I also declare under the penalty of perjury, under the laws of the State of California, that all of the information in this Affidavit as it applies to Job Trainee # 3 is true and correct to the best of my knowledge.

Name of Job Trainee _____ Title:_____

Signature (Job Trainee):_____ Date:_____

☐ Check this box if you would like to be contacted by nonprofit organization GRID Alternatives and receive more information about solar jobs and resources.

7.13. LIWP Existing Multifamily Assessment Report Template



LOW INCOME WEATHERIZATION PROGRAM

ENERGY ANALYSIS, SUGGESTED SCOPE OF WORK, AND MODELING CALCULATIONS FOR THE PROPOSED IMPROVEMENTS AT:

Project Name

Project Address
Project City, CA, Project Zip

Nice picture of property

Site Contact Information

<Contact Name> (555) 555-5555 contactemail@email.com

Energy Analyst's Contact Information

<Contact Name> (555) 555-5555 contactemail@email.com

Report Date: June 17, 2016[SG1]

camultifamilyenergyefficiency.org

ASSOCIATION FOR ENERGY AFFORDABILITY INC.

CSD

CALIFORNIA CLIMATE INVESTMENTS

Table of Contents[SG2]

DISCLAIMER

The owner(s) and manager(s) of the building are reminded that the scope of work presented in this report is not intended to correct or interfere with any in effect building code violations. Any improvements or work suggested in this energy audit report must be performed in accordance with all local, state, and federal laws and regulations that apply by case. Particular attention must be paid to any work that involves the disturbance of products containing asbestos or lead. The EnergyPro program models a simulated building's fuel consumption for heating, cooling, domestic hot water, and electric plug loads to estimate energy consumption. In many cases, consumption is modeled in accordance with Title 24 compliant default values rather than actual conditions. EnergyPro does not, however, model health and safety and immediately hazardous conditions. In addition, to ensure the predicted life expectancy of recommended measures, it is occasionally necessary to perform one or more related, but not analyzed measures. In modeling the building for EnergyPro purposes, building specific information was used, but where the information was not available during the site visit(s) or where there are several building dependent variables, such as average winter day and night temperature of the apartment, either a default value was used or the value entered is derived from the building manager, the super, or interviews with the building occupants.

SECTION I: EXECUTIVE SUMMARY

The Low-Income Weatherization Program (LIWP) for large multifamily buildings (LMF) offers property owners with qualifying low-income properties energy efficiency retrofit and weatherization incentives and technical assistance services for energy efficiency, solar water heating, and solar photovoltaic upgrades. The overall program goal is to reduce energy use and Green House Gas emissions in targeted "disadvantaged communities" as designated by the California Environmental Protection Agency.

This LIWP-LMF report contains a potential scope of work, analysis of existing building conditions, and comprehensive energy audit. It is designed for [insert property name] as a part of [Insert owner or developers name] LIWP application. It presents specific recommendations for the reduction of energy burden of heating, domestic hot water, and electric base load over modeled current building usage. The estimated savings projected in this report are intended to help guide the owner with project and scope development. It should be noted that in some instances the modeling software assumes an operation and energy usage in the building, which may vary from actual usage patterns. Additionally, the savings described are subject to fluctuations in weather, variations in quality of maintenance, changes in prices of fuel, materials, labor, and other factors difficult to predict.

The report describes the existing conditions, which are based on visual inspection, tenant and superintendent interviews, and instrumented analysis. In addition, the energy analyst modeled and performed energy analysis of the building and proposed retrofit measures using EnergyProLight Performance analysis software, and outline specific recommendations for the reduction in the building's annual energy use. The energy model shows all recommended measures modeled incrementally and shows percentage improvements over the existing building.

This report was prepared by [insert TA] and reviewed by [insert TA] from the Assiciation for Energy Affordabilty, Inc..

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LIST OF RECOMMENDED ENERGY CONSERVATIONS MEASURES[SG3]

[Property Name]		LIWP Incentive Worksheet									
Measure		Estimated Installed Cost	Annual Energy Savings		Site Energy Savings %	Annual Cost Savings	Savings to Investment Ratio (SIR)	Life Cycle Savings	EUL	GHG Savings	LIWP Contribution
IDENTIFIED ENERGY SAVINGS MEASURES			Therm	kWh		$		$	Years	MTCO2	$
1	Domestic Hot water Boilers	$55,000	1,334	0	7.2%	$1,521	0.4	$22,625	20	7.1	
2	DHW Controls	$5,000	410	851	2.4%	$612	1.1	$5,663	11	2.4	
3	Showerheads and Aerators	$6,000	958	0	5.2%	$1,092	1.6	$9,316	10	5.1	
4	Washing Machine Upgrade (6)	$9,000	319	3,488	2.4%	$957	1.0	$8,851	11	2.8	
5	LED Lighting Upgrade: In-Unit	$50,000	0	4,489	0.8%	$763	0.2	$7,596	12	1.4	
6	LED Lighting Upgrade: Common Areas	$13,000	-32	18,125	3.2%	$3,045	2.3	$30,308	12	5.5	
Totals		$138,000	2,989	26,953	21.2%	$7,989	0.61	$84,359	N/A	24.4	

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ESTIMATED PROJECT SOURCES AND USES		
Project Energy Savings Measures Total Gross Costs:	$138,000	
Owner Co-Investment Summary		Notes
Estimated Owner Direct Cash Co-Investment	$53,641	
Owner Co-Leveraged Funding Summary		Notes
N/a	$0	
LIWP Incentives Summary		Notes
Estimated Maximum LIWP Incentive (Based on GHG Reductions and Estimated Completion Date):	$84,359	
Savings and Payback Summary		Notes
Percent Reduction in Project Costs	**61%**	
Estimated Owner Annual Savings	$6,134	
Estimated Tenant Annual Savings	$1,855[SG4]	

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SECTION II: EXISTING CONDITIONS

<Basic information about the project: building characteristics, number of units, building construction type, number of stories, year built, total building area identified by use (residential, community/common, commercial), history of previous retrofits or rehabs, and other significant building features, date of site visit(s), names of individuals interviewed, overall physical condition of the building, etc.>

To determine the effectiveness of the currently proposed scope of work, a comprehensive energy assessment was conducted. On [assessment date] [Analyst names] from the Association for Energy Affordability visited the building and conducted a detailed energy assessment.

Building Ownership, Management, and Staffing

<Basic information on building ownership and management.>

Building Occupancy

<Details of building occupancy including number of units, floor layouts, common area or non-residential spaces, etc. If you did not visit each unit, this section should include a summary of the sampling procedure used on site.>

Energy Suppliers, Metering, and Electrical Systems

<Details of building energy suppliers and metering including energy providers, energy rates, metering configuration, meter location, fuels used in building etc.>

Building Envelope

<Details of building envelope including building construction, siding, framing, insulation levels, roofing type and age. Where possible insert pictures of building envelope systems>

Envelope Pictures

Envelop Pictures

Heating and Cooling Systems

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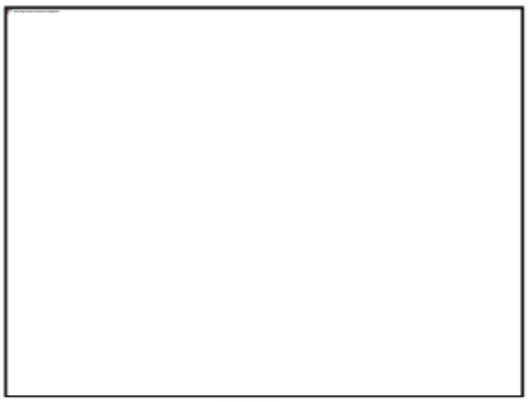
<Details of heating and cooling systems including system types, relative quantities, locations, models/makes of equipment. Consider inserting a table detailing the different equipment present the quantities and output and efficiency values. Insert representative pictures of equipment where possible>



HVAC Pictures

HVAC Pictures

Domestic Hot Water Systems

< Insert details of DHW systems including quantities, configuration, locations, model/makes, efficiency and output info. Pump details and recirculation systems if applicable. Information about pipe insulation or the lack thereof where applicable, and sampled water temps and time to get hot water. If there are many different types of equipment, consider using a table to display the information.

Sampled Water Temperatures:	
Unit #	Hot Water Temperature

DHW Pictures

DHW Pictures

Water Uses

<Insert details about water fixtures and toilet flowrates. Landscaping details where applicable including frequency of irrigation and delivery method. If there are water features, pools, or anything else with pumping requirements, detail those pumps here>

DHW Pictures

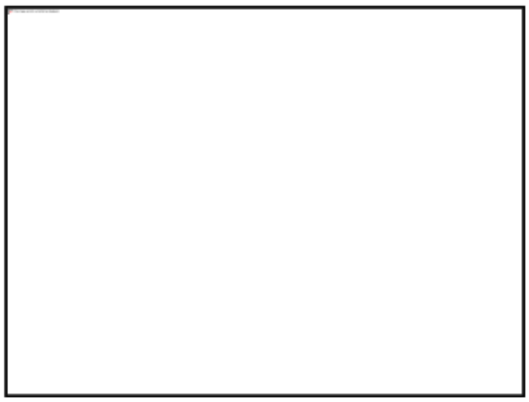
DHW Pictures

Lighting

<Details about lighting types, quantities locations, how lights are controlled and run hours. Break information into 2 sections. One for unit lighting and another for Common Area/Exterior. In units where room overhead lighting does not exist, what type of lamps do tenants typical use to provide lighting? Rather than relying solely on typed out details of all the lighting, also include a table that details existing lighting types, locations, and quantities.>

Tenant Areas:

Unit Lighting Pictures



Unit Lighting Pictures

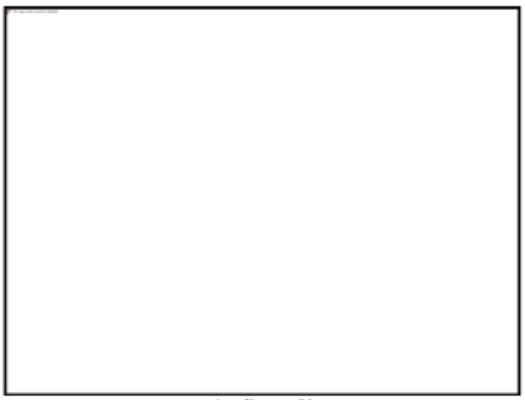
Common/ Exterior:

Common/Exterior Pictures

Common/Exterior Pictures

Appliances

<Insert details about tenant appliances (fridge, dishwasher, in unit laundry) . Make/model/mfct date where available, and annual energy consumption. Include tables detailing these appliance specs. Gas or electric ranges?>



Appliance Pictures

Appliance Pictures

Refrigerator Efficiencies				
Unit #	Manufacturer	Model #	Manufacture	kWh/year

Laundry Equipment

<Provide details on central laundry equipment. Location, quantity of laundry rooms, quantity of machines and types of machines>

Laundry Pictures

Laundry Pictures

Ventilation & Infiltration

<Insert details of any exhaust and ventilation equipment for the common area, parking, or other building areas. Give equipment details, control mechanism details, sizes, and configurations of any and all ventilation equipment>

Ventilation Pictures

Ventilation Pictures

Elevators

<give details on elevators at the property. At the very least describe location and quantity and if you've heard any health and safety compaints. Generally outside of elevator lighting, elevators repairs and upgrades will be beyond the scope of our recommendations.

SECTION III: RECOMMENDED MEASURES

Energy Efficiency Opportunities

The following measures reduce energy use. They may also reduce operating and maintenance expenses, improve tenant satisfaction, and provide other non-energy benefits. They are run as separate improvements in the energy modeling software in order to show incremental improvement of each successive measure, and are ordered based on industry-standard building science principles.

Summary details of each measure are described below, and detailed program performance requirements for each measure will be included in a separate performance specifications document.

1. Measure Description- should match measure as described in table above

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

2. Measure Description- should match measure as described in table above

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

Optional Measures

The following list of measures represents other savings opportunities at the building. These measures **are currently not** receiving rebate credit in the current energy model, but can be included[SG5].

1. Measure Description

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

ADDITIONAL RECOMMENDED MEASURES WITHOUT CALCULATED SAVINGS

The following measures are recommended to improve the durability, comfort, health, and safety of the property, and either have no energy savings or provide operations and maintenance savings which cannot be credited towards the program.

Health and Safety Opportunities

The following list of measures represents the health, safety, comfort, repair, code compliance, and other non- energy opportunities evaluated for this project. These measures **will not** receive credit in the energy model.

1. Measure Description

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

Operations, Maintenance, and Education Opportunities

The following list of measures represents potential management and education options at the building. These measures **will not** receive credit in the energy model.

2. Measure Description

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

Water and Landscaping Opportunities

The following list of measures represents the water and Landscaping opportunities evaluated for this project. These measures **will not** receive credit in the energy model.

1. Measure Description

Describe recommended improvement. Provide general language on the requirements and include any measure assumptions (number of fixtures, wattage, efficiencies, length of feet of pipe insulation, assumed R-values, U-values, etc). Performance specification document to be provided later to guide bidding contractors and to define minimum construction requirements.

SECTION IIII: MINIMUM COMBUSTION SAFETY REQUIREMENTS

On [Insert date of audit], [Insert TA] from the Association for Energy Affordability performed an initial combustion safety test at the property to determine if existing issues are present or if potential combustion safety issues may arise as a result of the chosen scope of work. The following table outlines combustion safety issues that were seen during the initial site visit or may develop based on the scope of work.

It is possible that due to your planned scope of work, combustion safety testing will be required for 100% of the units. **Repairs to items noted as required in table below must be performed.** Recommended items noted below are included to avoid potential issues at final test out. If additional issues are found during final test out, repairs to critical issues must be repaired prior to release of the rebate. Final testing is included in the technical assistance portion of the Program at no cost to you. However, all repairs noted as required above must be completed and evidence of repairs must be presented to the Technical Assistance provider.

IDENTIFIED COMBUSTION SAFETY ISSUES

Issue	Recommended Improvement/Repair	Required	Recommended
N/a	N/a	N/a	N/a

The following are testing results necessary to pass combustion safety tests per Building Performance Institute Building Analyst Technical Standards.

Minimum Combustion Safety Requirements	
Carbon Monoxide Alarms	Carbon Monoxide Alarms meeting UL-2034 must be installed in every unit with a combustion appliance and in every unit adjacent to an attached garage or mechanical room with a combustion appliance.
Ovens	If gas ovens produce between 100-300 ppm CO they are recommended to be serviced.
	If gas ovens produce over 300 ppm CO the unit must be serviced prior to work. If greater than 300 ppm after servicing, exhaust ventilation must be provided with a capacity of 25 CFM continuous or 100 CFM intermittent.
Unvented Combustion Appliances	No unvented combustion appliances may operate in the living space with the exception of gas ranges/ovens.
CVA	Combustion Ventilation Air (CVA) must adequate for installed equipment and existing CVA must be unobstructed.
Emergency Situations*	Emergency situations must be repaired immediately
Flue Gas Carbon Monoxide	If vented combustion appliance flue gas carbon monoxide levels are between 25-100 ppm service to fix the problem is recommended.
	If vented combustion appliance flue gas carbon monoxide levels are over 100 ppm the problem must be fixed.
Spillage and Draft Tests	Vented combustion appliances must pass a flue gas 60 second spillage and draft test under natural (non-depressurized) conditions.
	Vented combustion appliances must pass a flue gas spillage and draft test under "worst case" (depressurized) conditions. For appliances that do not pass worst case testing repairs to fix the problem are recommended.
Gas Leaks	No gas leaks may be present in the gas piping system.

Minimum Combustion Safety Requirements	
	Uncoated and pre- 1973 flexible gas connectors must be replaced.
Other	Other combustion safety issues and required or recommended repairs may be identified by auditor on a case by case basis.

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Appendix A: ENERGY MODEL OUTPUT REPORTS

Existing Conditions:[SG6]

Views@270 ORIGINAL baseline

Energy Upgrade Report **EPL-1**

Project Name	Building Type	Year Built	Date
Views at 270	☐ Garden ☐ Block ☑ High-rise	2005	5/10/2016
Project Address *1516 N. Western Ave. Los Angeles, CA 90027*	**California Energy Climate Zone** *CA Climate Zone 09*	**Total Cond. Floor Area** *61,573*	**# of Units** *56* / **# of Stories** *4*

Incentive Eligibility	Yes	No	Site Energy (kBtu/ft²-yr)	Existing	Improved	Savings
Owner Incentive (>=10% Site Savings)	☐	☑		33.2	33.2	0.0

		Savings						
		Calculated			Deemed			
Quant.	Recommended Improvement	kWh	kW	therms	kWh	kW	therms	Site

Annual Results	Electricity (kWh)			Fossil Fuel (therms)		
End Use	Existing	Improved	Savings	Existing	Improved	Savings
Space Heating	4,119	4,119	0	0	0	0
Space Cooling	80,168	80,168	0	0	0	0
Fans	9,240	9,240	0	0	0	0
Pumps	2,828	2,828	0	0	0	0
Domestic Hot Water	0	0	0	9,361	9,361	0
Indoor Lighting	31,936	31,936	0	0	0	0
Outdoor Lighting	0	0	0	0	0	0
Appliances/Plug Loads	23,355	23,355	0	0	0	0
Ancillary	149,128	149,128	0	830	830	0
Renewables	0	0	0	0	0	0
TOTAL	300,774	300,774	0	10,191	10,191	0

The estimated consumption numbers shown in this report are dependent upon many factors. The construction and conservation features of the project clearly are important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating use. The estimates provided in this report are based on typical conditions; your actual usage will vary.

EnergyPro Lite 1.0.4.0 by EnergySoft **RunCode: 2016-05-10T10:32:51**

All Improvements: [SG7]

Views@270 PROPOSED V.8

Energy Upgrade Report — EPL-1

Project Name	Building Type	Year Built	Date
Views at 270	☐ Garden ☐ Block ☑ High-rise	*2005*	*5/10/2016*

Project Address	California Energy Climate Zone	Total Cond. Floor Area	# of Units	# of Stories
1516 N. Western Ave. Los Angeles, CA 90027	*CA Climate Zone 09*	*61,573*	*56*	*4*

Incentive Eligibility	Yes	No	Site Energy (kBtu/ft²-yr)	Existing	Improved	Savings
Owner Incentive (>=10% Site Savings)	☑	☐		*33.2*	*26.2*	*7.0*

		Savings						
		Calculated			Deemed			
Quant.	Recommended Improvement	kWh	kW	therms	kWh	kW	therms	Site
N/A	*Shower Heads & Aerators: 958 Therms saved, Washing Machine Upgrade: 3488 KWh & 319 Therms saved, Interior Lighting Upgrade: 4489 KWh saved, Exterior*	26,953	0.0	1,655	N/A	N/A	N/A	13.9 %
N/A	*New High-Efficiency DHW Boiler*	0	0.0	1,334	N/A	N/A	N/A	21.2 %

Annual Results	Electricity (kWh)			Fossil Fuel (therms)		
End Use	Existing	Improved	Savings	Existing	Improved	Savings
Space Heating	*4,119*	*4,119*	*0*	*0*	*0*	*0*
Space Cooling	*80,168*	*80,168*	*0*	*0*	*0*	*0*
Fans	*9,240*	*9,240*	*0*	*0*	*0*	*0*
Pumps	*2,828*	*2,828*	*0*	*0*	*0*	*0*
Domestic Hot Water	*0*	*0*	*0*	*9,361*	*7,883*	*1,478*
Indoor Lighting	*31,936*	*31,936*	*0*	*0*	*0*	*0*
Outdoor Lighting	*0*	*0*	*0*	*0*	*0*	*0*
Appliances/Plug Loads	*23,355*	*23,355*	*0*	*0*	*0*	*0*
Ancillary	*149,128*	*119,265*	*0*	*830*	*-1,003*	*0*
Renewables	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL	***300,774***	***270,911***	***29,863***	***10,191***	***6,880***	***3,312***

The estimated consumption numbers shown in this report are dependent upon many factors. The construction and conservation features of the project clearly are important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating use. The estimates provided in this report are based on typical conditions; your actual usage will vary.

EnergyPro Lite 1.0.4.0 by EnergySoft — ***RunCode: 2016-05-10T09:52:18***

Appendix B: ENERGY MODELING ASSUMPTIONS

- Detail model assumptions here
-

Appendix C: SAMPLING DOCUMENTATION

Table 1. Sampling Documentation [SG8]

Building ID or Address								
Total # of units in Building		**Sampled Apt #**	**Sampled Apt #**	**Sampled Apt #**	**Sampled Apt #**	**Sampled Apt #**	**Sampled Apt #**	**Sampled Apt #**
# of 1 BR								
# of 2 BR								
# of 3 BR								

Appendix D: COMBUSTION APPLIANCE SAFETY WORKSHEET

Project Name _____ Auditor KB/JN Outdoor Temperature (F) 72°
Date _____ Test In Test Out

For Apartments with Multiple CAZ/CVA Requirements or Equipment Enter Data on Next Column

Location Info	Unit #	ROOF-TOP BOILERS		
	# of Combustion Appliance Zones			
	CO Monitor?	Yes No OUTSIDE	Yes No	Yes No
	Ambient CO (Pre-Testing ppm)	0		
Gas Oven	Gas line test			
	Range Exh Flow			
	Stove Burners	N/A		
	Oven CO			
	Ambient CO during testing			
Combustion Ventilation Area	Area Volume (cu ft)			
	Total Combined BTU Input	N/A ROOF TOP		
	CVA Required (<50 CF/1000 BTU)?			
	Existing CVA Type (Rule)	1 2 3 4	1 2 3 4	1 2 3 4
	Total NFV Area/Opening Required			
	Existing NFV Area/Opening High			
	Existing NFV Area/Opening Low			
	CVA Adequate	Yes No	Yes No	Yes No
WC Test	Base Pressure			
	WC Pressure			
	Net Depressurization			
	Describe Configuration			
Equipment Tests	Equipment Type			
	Model #			
	BTU input			
	Gas line test			
	Flue Inspection	Pass Fail	Pass Fail	Pass Fail
	Equip. depressurization limit (pa)			
	Equip. depressurization	Pass Fail	Pass Fail	Pass Fail
	BPI Minimum Draft (pa)			
	WC: Spillage	Pass Fail	Pass Fail	Pass Fail
	WC: CO (ppm)			
	WC: Draft (pa)			
	Pass WC Test?	Pass Fail	Pass Fail	Pass Fail
	Natural: Spillage	Pass Fail	Pass Fail	Pass Fail
	Natural: CO (ppm)			
	Natural: Draft (pa)			
	Pass Natural Test?	Pass Fail	Pass Fail	Pass Fail
Notes				

DRAFT 05.28.2014 TCAC Combustion Safety Worksheet

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Appendix F: LIGHTING UPGRADE SCHEDULE

Building Name	Location (ie: Kitchen 4 total Units)	Existing Fixture (describe)	Recommended Replacement (ie: "Fixture: 13w watt LED" or "Bulb: 13 watt LED. Use the word "fixture" to describe Com measures)	Ext Fixt Qty
Common Areas:				
Common Areas	Manager's Office	4x 13w 4-pin CFL	replace fixture with 30watt LED	2
Common Areas	Recessed cans above doorways	2x 13W 4-pin CFL Recessed Light Can	6" wet location 13w LED retrofit kit	20
Common Areas	Hallway Sconces	Existing LED - gutted from lithonia 9.4 watts	n/a	24
Common Areas	Hallway Ceiling Fixture	New Decorative 25 watt LED 16"	n/a	12
Common Areas	Community Room: Bathroom Vanity	2x 26w 4-pin CFL	replace fixture with 20watt LED	1
Common Areas	Elevators	6x 13w CFLs	replace with new 9w LED bulb	12
Common Areas	Stairwells	New LED Round Fixture	n/a	6
Common Areas	Underground Parking - lights to remain on continuously	40w LED fixture	n/a	40
Common Areas	Underground Parking - lights that can be turned off	40w LED fixture	install occupancy sensor on fixture	9
Common Areas	Up/Down Bldg. Lights	2x 50w PAR20	Replace bulbs with 8w LED PARs	14
Common Areas	Landscape Up Lights	50w PAR20	Replace bulbs with 8w LED PARs	6
Common Areas	Ext Walkway Step Lights	1x 26w 4-pin cfl	replace with new 15 watt LED corncob bulb	26
Common Areas	Stairwell Angle Fixtures	1x 13w 4-pin cfl	replace with Lithonia OLFL 14 PE 8Z (18w) LED fixture	10
Common Areas	Garage Ramp ceiling	2x F32T8 Surface mount Fixture	replace with new LED fixture: Lithonia FMLWL 48 840 (40w) or equal wattage	2
Common Areas	Ext. Back Walkway Security Lights	2x F32T8 Surface mount Fixture	replace with new LED fixture: Lithonia FMLWL 48 840 (40w) or equal wattage	3
Common Areas	Laundry Room	2x F32T8 Surface mount Fixture	replace with new LED fixture: Lithonia FMLWL 48 840 (40w) or equal wattage	3
Common Areas	Community Room Lighting	2x F32T8 uplight	change switching (occupancy, daylighting, bi-level)	26
Common Areas	Computer Lab Lighting	4x F32T8 Surface mount Fixture	replace bulbs with Feit T48/841/LED 17w LED Tubes	2

Building Name *In-Unit:*	Location (ie: Kitchen 4 total Units)	Existing Fixture (describe)	Recommended Replacement (ie: "Fixture: 13w watt LED" or "Bulb: 13 watt LED. Use the word "fixture" to describe Core measures)	Ext Fixt Qty
In-Unit	Hallway Sconces	1x 26W 4-pin CFL Surface mount fixture	new 16w surface LED fixture: Lithonia FMSATL 13 or equal wattage	56
In-Unit	Entry Ceiling	2x 13W 2-pin CFL Surface mount fixture	new 16w surface LED fixture: Lithonia FMSATL 13 or equal wattage	56
In-Unit	Hallway Ceiling	2x 13W 2-pin CFL Surface mount fixture	new 16w surface LED fixture: Lithonia FMSATL 13 or equal wattage	56
In-Unit	Kitchen Ceiling	3x 13W 2-pin CFL Surface mount fixture	new 16w surface LED fixture: Lithonia FMSATL 13 or equal wattage	56
In-Unit	Dining Room Ceiling	3x 13W 2-pin CFL Surface mount fixture	new 16w surface LED fixture: Lithonia FMSATL 13 or equal wattage	56
In-Unit	Incandescent Bulbs in Tenant Floor Lamps Estimate per bedroom	screw in incandescent bulb	screw-in LED bulb	30
In-Unit	CFL bulbs in tenant floor lamps estimate per bedroom	screw in CFL bulb	screw-in LED bulb	96
In-Unit	Bath Vanity	4x 13w 2-pin CFL Vanity Light	replace fixture with 30watt LED fixture	156

7.14. Program Referral Table

Matrix of Utility Multifamily Energy Efficiency & Renewable Incentive Programs in California

Program Name	Description	Incentive Value	Delivery Model	Audit Requirement/Incentives	Type of Measures or Minimum Improvement Requirements	Eligibility	Utility Territories Covered
SMUD Home Performance Program Multifamily (HPP-MF)	SMUD's version of the Energy Upgrade California: the program offers incentives for a whole-building energy efficiency retrofit approach. An energy consultant offers free technical assistance to owner throughout retrofit and HPP-MF process, and connects owners with other incentives (including water). Program models savings over existing conditions. Ideal for integration with planned rehab project.	Performance-based incentive (only electric Kwh)- $25 per 1% Kwh improvement/unit; maximum is $1,250/unit or up to 50% savings	Owner chooses independent auditor and contractor, approved by program. Incentive paid at project completion.	HERS II approved rater energy assessment using Energy Pro software modeling.	Minimum of 10% energy improvement over existing conditions.	≥3 units. First come, first served basis.	SMUD
Marin Clean Energy (MCE) Multifamily Program	MCE's multifamily energy efficiency program available to both market rate and affordable customers in MCE territory. Offers no-cost technical assistance to develop scope of work and solicit bids. Also offers direct-install measures for tenant units.	Rebates averaging 25-60% of project costs. Points-based system; each measure is assigned a point, and points are multiplied by number of units to project rebate.	MCE provides technical assistance, assessment, and assistance with selecting contractor. Owner chooses contractor. Incentive paid at project completion.	Site visit and audit provided by technical assistance at no cost to owner.	No minimum savings requirements.	≥4 units. first-come, first-serve basis.	Marin, Unincorporated Napa County, City of Richmond, San Pablo, Benicia, and El Cerrito.
Bay Area Multifamily Building Enhancements (BAMBE or BAYREN)	Pilot program offering incentives for a whole-building energy efficiency retrofit approach. An energy consultant offers free technical assistance to work with owner throughout the retrofit process, and connect to other incentive programs (including water). Program models savings over existing conditions. Ideal for integration with planned rehab project.	$750/unit for savings of at least 10% savings.	No-cost technical assistance. Incentive paid at project completion.	Site Visit and audit provided by technical assistance at no cost to owner.	Minimum of 10% energy improvement over existing conditions.	≥5 units, install 2 or more eligible measures. Available on a first-come, first-served basis.	Must have PG&E service in one of the following counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma
Southern California Regional Energy Network (SoCalRen or the Energy Network)	Pilot program offering incentives for a whole-building energy efficiency retrofit approach. An energy consultant offers free technical assistance to work with owners throughout the retrofit process, and connects to other incentive programs (including water). Program models savings over existing conditions. Ideal for integration with planned rehab project.	Up to $550/unit for savings of at least 10% savings.	Owner hires qualified partners; Rater performs audit, contractors perform installation. Incentive paid at project completion	Owner's choice of independent approved auditor; $5,000-$10,000.	Minimum of 10% energy improvement over existing conditions.	≥5 units. Install 3 or more eligible measures. Available on a first come, first-served basis.	Serving the following counties: Los Angeles, San Bernadino, Riverside, Ventura, Inyo, Imperial, and Mono, and portions of Orange, Kern Tulare, Santa Babara, and Kings.
SoCalGas-LADWP Energy Upgrade Program	SoCalGas and LADWP offer a joint EUC pilot program for the City of Los Angeles. The SoCalGas/LADWP EUC pilot uses a whole-building performance-based retrofit approach.	Tiered value based on percent improvement: $420 to $960 per unit.	Owner enrolls in program. Audit is performed by program for approved projects. Owner's contractor performs installation. Incentive paid at project completion.	ASHRAE Level II by approved program rater. Program covers cost of audit.	Minimum of 10% energy improvement over existing conditions.	≥3 units. Served by both utilities. First come, first served basis.	SoCalGas-LADWP
LADWP Consumer Rebate Residential Programs	Offers rebates for the installation of qualified energy-efficiency products in existing apartment units.	Varies by product; examples include: $65 for ENERGY STAR Refrigerator $100-$120/per ton for HVAC $200 per unit for whole house fan.	Owner submits application after purchase and installation of measures. Verification inspection may be requested before rebate payment is issued.	No audit.	Measures vary. Examples include: Energy Star (ES) refrigerator, ES windows, cool roofs, ES room AC, energy efficient AC and heat pumps, whole-house fan, variable speed pool pump and motor.	First come, first serve basis.	LADWP
LADWP Home Energy Improvement Program (HEIP)	LADWP's no-cost direct install program for in-unit measures. HEIP requires participation by a minimum of 50% of the residents in any multifamily building. Program offers customers a home assessment to identify the most appropriate and effective improvement at no-cost. Program does not allow owners to choose contractors.	Direct install (no cost).	Contractor approved and selected by utility.	No Audit. Home assessment and report issued by technicians.	Blower door test, air sealing, insulation, door repair replacement, window repair and glass replacement, replace AC, duct leakage diagnostics and repair, repair or property vent combustion systems, low-flow toilets, low-flow showerheads, low-flow faucet aerators.	No income qualification required. First come, first serve basis.	LADWP
Federal and State Retrofit Programs							
Federal Weatherization Assistance Program (WAP)	Federally-funded weatherization program administered by the California Department of Community Services and Development (CSD).	Direct install (no cost)	Local service providers install measures. Only specific service providers authorized to participate in MF program.	Audit required to participate in MF version of program.	Varies by local service provider. Low-flow showerheads, weather-stripping, appliances, heating/cooling system repair, ceiling fans, water heater blankets, light bulbs, insulation, microwaves, solar water heating.	Income guidelines set at or below 60% of state median income. All buildings can be weatherized when 66% of units are determined to be eligible.	Statewide
Low Income Home Energy Assistance Program (LIHEAP)	Federally funded assistance program administered by CSD that provides direct financial assistance to eligible low income households to offset heating and cooling costs.	Tenant-based incentive	Direct monetary assistance to tenants	N/A	Types of assistance to tenants varies. Examples include: utility bill assistance, emergency assistance to prevent home energy shut-off, emergency heating and cooling repair	Income guidelines set at or below 60% of state median income.	Statewide
Low Income Weatherization Program (LIWP) - Small Multifamily	Small Multifamily Cap-and-trade funded retrofit program administered by CSD for eligible small properties where units have own water heater and own heating/cooling system. Program will offer energy efficiency, solar water heating, and solar PV incentives. CSD will leverage LIWP work with its existing federal LIHEAP funds.	No-cost	Local service providers install measures.	No audit.	Eligible measures include wall/floor/ceiling insulation, window replacement, water flow restrictors, lighting measures, replacement of cooling system, "Smart" power strips, water heater repair/replacement, water heater blanket, solar water heater, microwave oven, ceiling fans, and refrigerator replacement, solar pv, among others	>5 units; each unit served by own hot water and heating/cooling system. Meet WAP/LIHEAP income requirement and be located in a Disadvantaged Communities (DACs), as defined by CalEPA's CalEnviroScreen 2.0 Tool. First come, first serve basis.	Statewide in Disadvantaged Communities
Low Income Weatherization Program (LIWP) - Large Multifamily	Cap-and-Trade funded retrofit program administered by Association for Energy Affordability (AEA). Program will offer energy efficiency, solar water heating, and solar PV incentives. In addition to these incentives, the program also encourages leveraging external rebates to maximize the potential to reduce green house gas (GHG).	Program Guidelines Currently Under Development: Whole-building retrofit approach that emphasizes cost-effective measures and yields GHG reductions in relation to the energy savings per dollar. AEA to perform whole building audits and analysis.				>20 units; served by central hot water and heating/cooling system. Meet program income requirements and be located in DACs. First come, first serve basis.	Statewide in Disadvantaged Communities

Program Name	Description	Incentive Value	Delivery Model	Audit Requirement/Incentives	Type of Measures or Minimum Improvement Requirements	Eligibility	Utility Territories Covered
Solar and Domestic Hot Water Programs							
California Solar Initiative (CSI) Multifamily Affordable Solar Housing (MASH)	Provides incentives to offset the cost of installing solar on existing qualifying low-income multifamily affordable housing.	Offers incentives for installation of up to 1 MW of PV capacity: **Track 1C:** PV system offsetting common area load, non virtual net metering (VNM) tenant load, or VNM tenant load with <50% tenant benefit: **$1.10/watt** **Track 1D:** PV system offsetting VNM Tenant Load with ≥50% tenant benefit : **$1.80/watt**	Owner, or designated third party, may apply. Installation may be completed by owner or licensed contractor. Incentive paid at project completion.	ASHRAE Level I or Higher, OR enroll in a utility energy efficiency program (e.g. EUC), Regional Energy Network, Community Choice Aggregator, or federally provided multifamily energy efficiency program (e.g. WAP or LIHEAP)	Photovoltaics	In addition to audit requirement, contractors must provide a job training opportunity to more than one trainee, with one additional trainee for each 10kW up to 50 kW. Program currently has a wait list. Program administrators expect to determine in mid-September 2015 if there will be funding remaining to accept new applications.	PG&E SDG&E SCE
California Solar Initiative (CSI) Thermal Program	Offers rebates for installing solar thermal systems to replace water-heating systems powered by electricity and natural gas.	Up to **$800,000** per property. Gas payment = $24.89/therm, Electric payment = $.42/Kwh	Owner chooses licensed solar contractor approved by the utility, which pays the incentive at project completion.	Owner must provide an energy efficiency audit or survey completed within the last three years.	Solar water heating systems.	System must displace natural gas, electricity, or propane. Self-installations are permitted.	PG&E SDG&E SCE SoCalGas
New Solar Homes Partnership - New Construction	Provides rebates and technical assistance to encourage the installation of solar serving the residential portion of multifamily new construction.	Tiered value based on percentage savings: **$1.00/watt** for Tier I: Exceeding 2013 Title 24 Standards by 15% **$1.50/watt** for Tier II: Exceeding Title 24 Standards by 30% **$.75/watt** for baseline 2013 Title 24 compliance **$1.85/watt** for affordable housing incentive:	Owner, developer, or builder chooses licensed solar contractor approved by CEC, which pays the incentive at project completion.	No audit required.	Flat-plate photovoltaics.	Must comply with 2013 Title 24 Standards. Program encourages participation in utility energy efficiency programs before applying.	PG&E SDG&E SCE
LADWP Solar Incentive Programs (SIP)	SIP Provides a lump-sum payment to customers that purchase or lease PV systems to offset traditional energy consumption at the installation site. SIP provides additional funding triggers for qualified affordable Housing.	Incentive varies by expected system performance and whether customer elects to retain ownership of the system. Non-residential (Qualified Affordable Housing) Incentive Level: **$1.45/watt**	Owner chooses licensed solar contractor and submits SIP application. Owner obtains incentive confirmation prior to installation. System is installed and inspected by LADWP prior to issuing payment.	**Existing buildings:** audit required **New construction:** demonstrate 15% above Title 24 standards	Solar panels for electricity generation.	At least 50% of units must be reserved affordable to households at or below 80% of Area Median Income. Affordability term maintained for at least 10 years.	LADWP

PROGRAM CONTACT INFORMATION						
	PG&E	SDG&E	SCE	SoCalGas	SMUD	LADWP
Energy Efficiency Program Single-Point-of-Contact	**Karen Contreras** KxCt@pge.com (415) 973-1022	**Cheryl Lacombe** clacombe@trcsolutions.com (916) 844-0092	**Jose Buendia** jose.buendia@sce.com (626) 302-0714	**Mark Reyna** MReyna@semprautilities.com (213) 244-3475	**Misha Sarkovich** MSarkov@SMUD.org (916) 732-6484	
Utility Retrofit Incentive Programs						
Energy Savings Assistance Program (ESAP)	**Mary O'Drain** Mjob@pge.com (415) 973-2317	**Chuck Berry** Cberry@semprautilities.com (858) 650-4114	**John Fasana** john.fasana@sce.com (626) 302-5236	**Mark Aguirre** maaguirre2@semprautilities.com (213) 244-3281		
Middle Income Direct Install Program (MIDI)						
Energy Upgrade California for Multifamily (EUC)	**Mike Maroney** mmaroney@trcsolutions.com (916) 962.7001	**Cheryl Lacombe** clacombe@trcsolutions.com (916) 844-0092	**Jose Buendia** jose.buendia@sce.com (626) 302-0714	**Mark A. Reyna** MReyna@semprautilities.com (213) 244-3475		
Multifamily Energy Efficiency Rebate Program	(800) 933-9555	(800) 644-6133	(800) 736-4777	(800) 508-2348		
New Construction Incentive Programs						
California Multifamily New Homes Program (CMFNH)	cmfnh@h-m-g.com (866) 352-7457					
California Advanced Homes Program (CAHP)	cmfnh@h-m-g.com (866) 352-7457	NewHomes@sdge.com (866) 631-1744	Monica.Leong@sce.com (626) 622-9182	NewHomes@socalgas.com (866) 563-2637		
Regional and Municipal Retrofit Programs						
Marin Clean Energy (MCE) Multifamily Program	energysavings@mceCleanEnergy.org (415) 464-6033					

Regional and Municipal Retrofit Programs	
Bay Area Multifamily Building Enhancements (BAMBE or BAYREN)	**Miya Kitahara** miya@stopwaste.org (510) 891-6558
LADWP Consumer Rebate/Residential Programs	crp@ladwp.com (800) 374-2224
LADWP Home Energy Improvement Program (HEIP)	help@ladwp.com (888) 822-8497
LADWP-SoCalGas Energy Upgrade Program	**Mark Reyna** MReyna@semprautilities.com (213) 244-3475
Southern California Regional Energy Network (also known as the Energy Network)	Lamultifamily@builditgreen.org (213) 688-0070
SMUD Multifamily Prescriptive Rebates	**Misha Sarkovich** MSarkov@SMUD.org (916) 732-6484
SMUD Home Performance Program (HPP)	
Federal and State Retrofit Programs	
Federal Weatherization Assistance Program	Locate service providers in your area
Low Income Weatherization Program (LIWP) - Small Multifamily	Locate service providers in your area
Low Income Weatherization Program (LIWP)	www.csd.ca.gov/liwp

Solar and Domestic Hot Water Programs						
California Solar Initiative (CSI) - Multifamily Affordable Solar Housing (MASH)	solar@pge.com (877)-743-4112	csi@energycenter.org (858) 244-1177	NSHP@sce.com (866) 584-7436			
California Solar Initiative (CSI) -Solar Water Heating Program		swh@energycenter.org (858) 244-1177	CSIGroup@sce.com (866) 584-7436	swh@SoCalGas.com (800) 427-2000		
New Solar Homes Partnership - New Construction	Renewable@energy.ca.gov (844) 217-4925					
LADWP Solar Incentive Programs (SIP)	solar@ladwp.com (866) 484-0433					

7.15. Measures Category

MEASURE NAME	MEASURE TYPE
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
Attic Insulation	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
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

MEASURE NAME	MEASURE TYPE
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

7.16. Test-Out Memo

LOW INCOME WEATHERIZATION PROGRAM

VERIFICATION REPORT AND INCENTIVE SUMMARY

Project Name

Address 1

Address 2

Property Owner Organization	
Property Owner Contact Name	
Property Owner Contact Phone	
Property Owner Contact Email	
Report Date	
Report Author	

1

LOW INCOME WEATHERIZATION PROGRAM

VERIFICATION REPORT AND INCENTIVE SUMMARY

EFFICIENCY MEASURE INSPECTION FINDINGS AND COMBUSTION SAFETY SUMMARY

On insert date, TA Name from the Association for Energy Affordability performed project verifications on the Project. The verification site visit is used to confirm that all energy savings measures meet program requirements and to confirm any preexisting or newly arisen combustion safety issues have been remedied.

Per the information contained in this memo, this Project has successfully completed the work scope required to meet the Low Income Weatherization Program's minimum performance standards and combustion safety requirements. Incentives are approved in the amount listed the tables below.

COMBUSTION SAFETY VERIFICATION

Report on Combustion Safety Testing results, if applicable

TENANT BENEFITS

Report tenant-specific benefits, including co-benefits as applicable

COMPLETED SCOPE OF WORK INCENTIVE, COST, AND SAVINGS SUMMARY

The installation of the following measures conforms to the Low Income Weatherization Program's minimum performance standards and were verified during the site visit. The following chart summarizes the energy, cost, and greenhouse gas emission reductions achieved at this property.

LOW INCOME WEATHERIZATION PROGRAM

FINAL VERIFICATION REPORT AND INCENTIVE SUMMARY

Casas de la Vina 23784 Ave 9, Madera, CA 93637				LIWP EE Incentive Summary					
	Measure	Actual Install Cost	Owner or Tenant Savings?	Status	Site Energy Savings %*	GHG Savings	Completion Date	Rebate Per MTCO2	LIWP Incentive	Project Phase
PLANNED ENERGY SAVINGS MEASURES				Prep. d?		MTCO2				
1	Low Flow Bathroom Aerators (0.5 gpm)	$399	Tenant	Yes	0.0%	0.06	before April 2017.	$5,000	$306	Phase 1
2	Low Flow Showerheads (1.5 gpm with TSV)	$2,391	Ten nt	Yes	0.1%	0.21	before April 2017.	$5,000	$1,053	Phase 1
3	In-Unit LED Lighting	$12,285	Ten nt	Yes	1.6%	3.02	before April 2017.	$5,000	$15,093	Phase 1
4	Comprehensive Common Area and Exterior LED Lighting	$2 923	Ow r	Yes	5.1%	9.35	before April 2017.	$4,000	$37,394	Phase 1
5	Energy Star Rated Refrigerators (assumes 60% are replaced	$2	Te t	Yes	0.7%	1.35	before April 2017.	$5,000	$6,771	Phase 1
6	New Dual Pane Vinyl Windows	$17 57	Tenant	Yes	10.4%	19.18	before April 2017.	$5,000	$95,903	Phase 1
8	Heat Pump Hot Water Heaters (>3.2 Energy Factor)	$13 72	Tenant	Yes	15.8%	29.08	before April 2017.	$5,000	$145,410	Phase 1
9	Professionally Clean and Seal Ductwork to less than 15% leakage	88,100	Tenant	Yes	2.0%	3.62	before Feb 2018.	$4,500	$16,297	Phase 2
10	Replace all HVAC with Heat Pump (HSPF> 8.3, SEER >16) (installed equipment exceeded minimum requirements)	$221,830	Tenant	Yes	10.6%	19.55	before Feb 2018.	$4,500	$87,979	Phase 2
	Totals	$680,112			46.4%	85.43			$406,206	

3

DESCRIPTION OF ENERGY EFFICIENCY UPGRADES AND SUPPLEMENTAL PHOTOS

1. NEW CENTRAL DOMESTIC HOT WATER BOILERS

Existing: Two indirect domestic hot water systems supplied hot water to the tenant and common area spaces. The two boilers are manufactured by Thermo-Pak (model GWA 3150) with a 2,000 gal storage tank with thermal efficiency of 80%.

Installed: Two new RayPak H7-2005 closed combustion 96% thermal efficiency condensing boiler DHW System that utilize the same 2,000 gal storage tank system.

Existing DHW Boiler

New DHW Boiler

2. NEW CENTRAL DOMESTIC HOT WATER RECIRCULATION PUMPS

Existing: Two recirculation pumps serviced the DHW system, including a 1 HP recirculation pump and one ½ HP boiler-to-storage tank circulation pump.

Installed: One new 1/2 HP DHW recirculation pump was installed. The new boilers have integrated ½ HP boiler pumps.

Existing Recirculation Pump

New Recirculation Pump

3. NEW SOLAR THERMAL SYSTEM

Existing: No solar thermal system existed previously.

Installed: A new 30-panel solar thermal system was installed at the property using a glycol loop and external heat exchanger.

New Solar Thermal System

4. LOW FLOW SHOWERHEADS AND AERATORS

Existing: Existing showerheads were 2.5 GPM and bathroom and kitchen faucet aerators were 2.0 and 2.2 GPM.

Installed: In combination with the energy efficient water heating, low flow kitchen and bathroom aerators (1.5gpm) and showerheads (1.75gpm) were installed throughout the building to encourage additional energy savings by reducing consumption.

New 1.75 GPM Showerhead and 1.5 GPM Aerator

5. NEW WASHING MACHINES

Existing: Four electric dryers and four top-loading washing machines, located in one central laundry room, serves the laundry needs for all 112 units.

Installed: Top loading washing machines were replaced with high efficiency front loading machines.

Existing and New Laundry Washers

6. NEW INTERIOR AND EXTERIOR LED FIXTURES

Existing: Fluorescent lighting (T8/CFL) fixtures were prevalent in units, corridors, stairwells, and community rooms, including 24 hours lighting in the corridors and stairwells. A combination of CFL, metal halide and high pressure sodium was used in exterior lighting configurations, but for tenant controlled and 12-hour owner controlled fixtures.

Installed: The renovation featured a comprehensive LED lighting upgrade throughout the common areas and exteriors and a mix of LED, and high efficiency fluorescent T5 and T4 lighting in the dwelling units.

New Various Lighting Fixtures