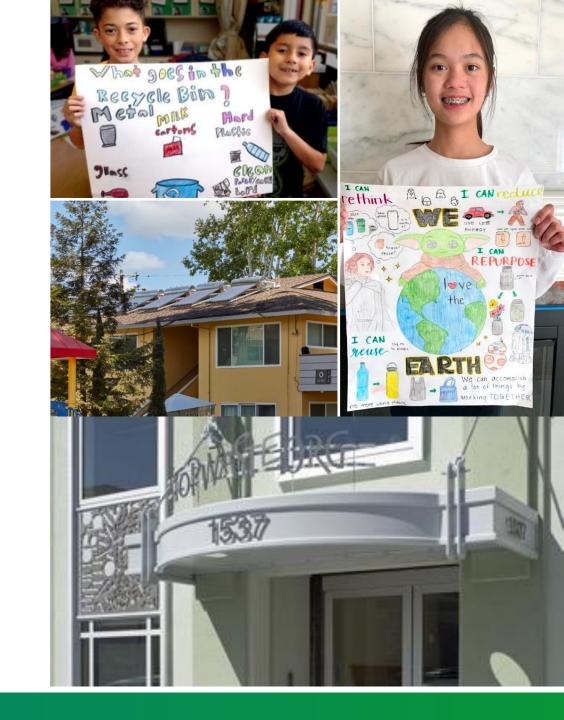
Redesigning multifamily incentives to center renters <> equity

CCEC

Part 2

June 13, 2023



Who/what is StopWaste?

- Founded 1976 as ACWMA, 2013 Energy Council approved as a JPA
- Countywide public agency with 17 member agencies representing Alameda County, its 14 cities, and 2 sanitary districts
- We help ALCO businesses, residents, and schools waste less, recycle properly and use water, energy and other resources efficiently
- Administers the BayREN Multifamily (BAMBE) and Green Labeling programs



Who/what is BayREN?

- Founded 2013, collaboration of 9 Bay Area counties partnering to promote resource efficiency focused on energy, water and greenhouse gas reduction
- RENS have unique directives to fill gaps that utilities are not serving, develop programs for hard-to-reach communities, and pilot innovative and scalable initiatives.



BAMBE to date

- Program launched in 2014, longest running MF program in CA
- No-cost energy consulting/TA and significant incentives
- Upgraded 45k+ units across 600+ multifamily properties, over 5% of Bay Area MF building stock
- \$34+ million in direct rebates
- Mostly served deed-restricted or higher end market rate rental, NOT unsubsidized affordable housing (UAH, aka NOAH)
- No requirement for prevailing wage, pick your own licensed contractor



(Current) Bay Area MF Program Landscape

- Mix of existing program and recent influx of new programs, all EE and electrification
- High potential for customer confusion, BUT also for collaboration!
- Implementation complexity leading to reduced effectiveness and increased costs
- Need for state level coordination (MF-HERCC)



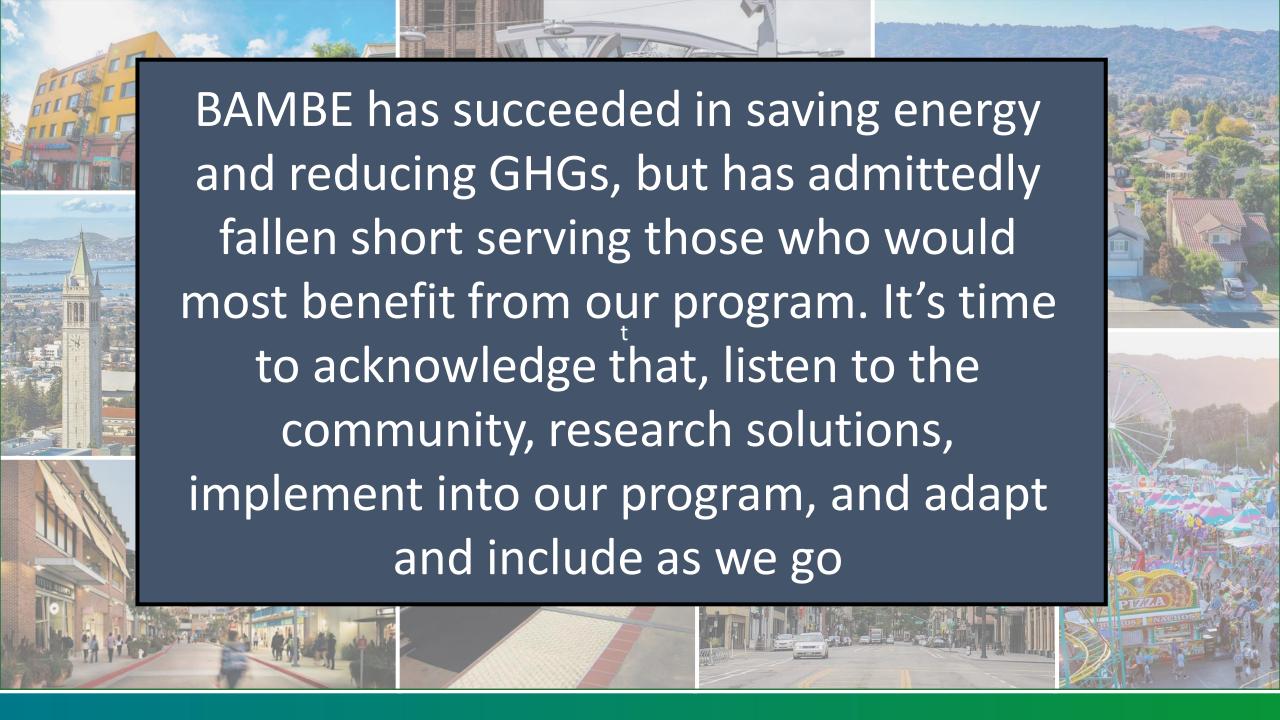








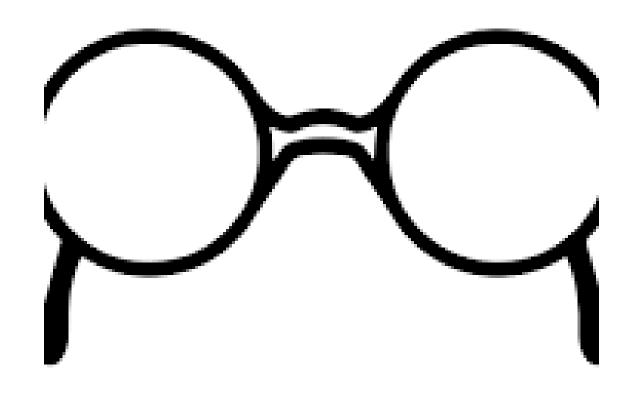




2023 Incentive Redesign

Centering equity

- Identifying specific building upgrades offered through BAMBE that can reduce burdens experienced inequitably throughout the region,
- 2. Providing higher incentives for properties located in those overburdened regions when the scope of work includes upgrades that can reduce the impact of those burdens,
- 3. Providing higher incentives for in-unit measures that improve comfort and safety for properties located in regions that have historically been "underserved" by energy efficiency programs.



Incentive Structure

• OLD: \$750 per unit 10% savings achieved by minimum 3 measures, with separate pathway for electrification

NEW

Basic Package

Rebate	Amount	Eligible Measures	
Base	\$500 per unit	All eligible energy efficiency measures	

Bonus Adders

Electrification

Health Burden

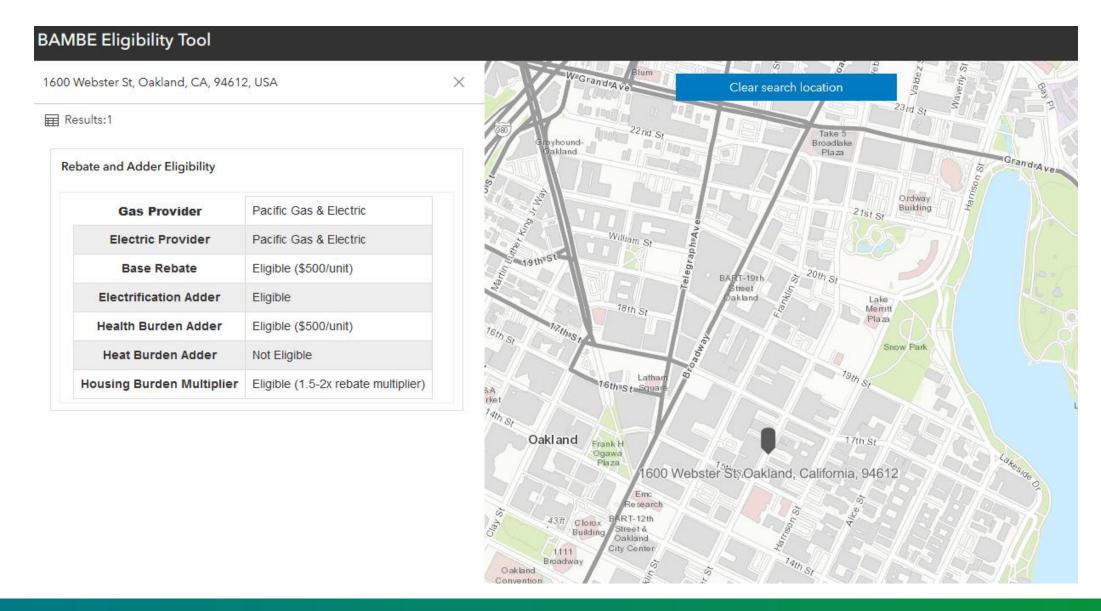
Heat Burden

Housing Burden

Adders and multipliers

Adder	Description	Data used
Electrification	Additional incentives are offered for gas-to-electric upgrades that result in reduced GHG emissions.	NA
Health Burden	Properties in specific "Health Burdened" geographic zones will receive additional incentives for in-unit upgrades that improve indoor air quality.	Asthma rates Air pollution
High Heat/Resilience	Properties in specific "High Heat Burdened" geographic zones will receive additional incentives for in-unit upgrades that help residents be more resilient to extreme heat events.	High heat days Percent impervious surface
Housing Burden	Properties in specific "Housing Burdened" geographic zones will receive additional incentives for certain in-unit upgrades.	Housing burden (ACS, CES4.0)

Eligibility Tool



Electrification Adder

Eligibility	Eligible Measures	Rebate Amount	
All properties in BayREN territory are eligible	In-unit Heat Pump Water Heater	\$1500 per apartment upgraded	
	In-unit Heat Pump HVAC	\$1500 per apartment upgraded	
	In-unit Laundry Dryer	\$250 per apartment upgraded	
	In-unit Electric Cooking	\$750 per apartment upgraded	
	Central Heat Pump Water Heater	\$1000 per apartment served	
	Central Heat Pump HVAC	\$1000 per apartment served	
	Common Area Heat Pump HVAC	\$1000 per equipment	
	Laundry/Common Area HP Water Heater	\$1000 per equipment	
	Heat Pump Pool Heater	\$1000 per pool/spa	
	Panel Upgrades	\$1000 per unit for subpanel & \$5000/property for central/common area	

Health Burden Adder

Eligibility	Eligible Measures	Rebate Amount
Only properties located in "Health Burdened" priority zone	Windows	\$500/ unit
	In-unit Heat Pump HVAC (MSHps/ PTHPs)	
	In-unit Laundry Dryer	
	In-unit Electric Cooking	
	Residential Heat Pump Water Heater	

High Heat Burden/Resilience Adder

Eligibility	Eligible Measures	Rebate Amount	
	Windows	\$500 / unit	
Only properties located in "Heat Burdened" priority zone	In-unit Heat Pump HVAC (MSHps/ PTHPs)		
	Wall Insulation/ Attic Insulation/ Roof Insulation/ Crawlspace Insulation/ Floor Insulation/ Cool Roof		

Housing Burden Multiplier

Eligibility	Eligible Measures	Rebate Amount	
Only properties located in "Housing Burdened" priority zone	A) 1.5x increase to total rebate OR 2X increase if scope includes wall insulation and/or window upgrades		
AND Has <50 units and built pre-2010, or deed-restricted affordable property	Up to \$500 reimbursable per unit for refrigerators, dishwashers, in-unit washing machines, lighting, in-unit duct sealing, in-unit duct insulation, and/or smart thermostats		

2023 uptake to date (TA provided)

- High lead volume coming out of pandemic, interest in electrification
- 55 projects, 1474 units
- >\$2mil in incentive



Striving for....

- Fund non-energy maintenance and repairs to increase pride and sense of place, fund landscaping/permaculture to connect residents to land
- Better/more granular tracking of who we're serving







Marisa Villarreal (she/her), SOMAH Program Director

California Climate and Energy Collaborative Forum June 12, 2023



What Sets SOMAH apart?

First of its kind

- Pioneering inclusion of economic, environmental, and community development
- 2. Single program administrator creates advances in accessibility
- 3. Designed to prioritize tenants and dedicated to equity
- 4. All nonprofit administration team¹



Making Renewable Energy Accessible

Why We Need to Change Access to Solar

Decreasing solar costs

Less accessible to low-income households

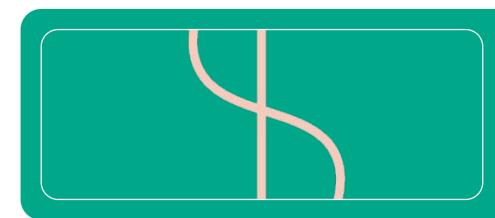
Less access for low-income multifamily renters

Low access rates in communities of color and Tribal Nations

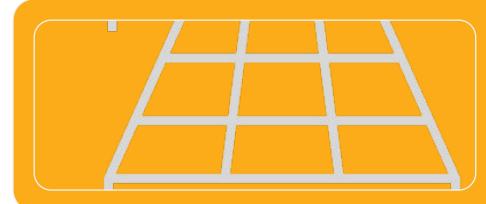
- Becoming more common in middle to high-income households
- In 2018, only 15% of solar adopters were low-income households
- Low-income households spend larger portion of income on home energy costs
- Aren't the decision makers
- Need to close the gap between who has access to and who benefits from solar

Building Equity Into Policy & Programs with SOMAH

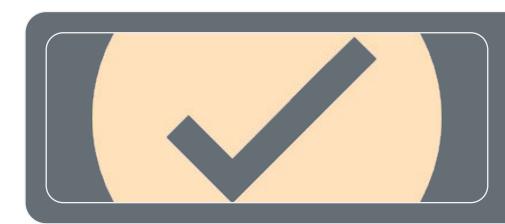
SOMAH's Goals



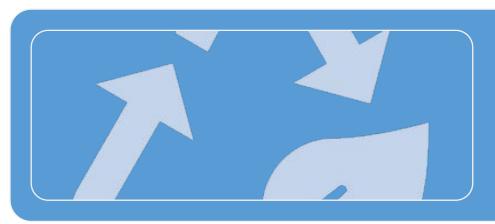
Incentivize solar adoption on multifamily affordable housing



Install 300 megawatts of generating capacity by 2030



Contribute to economic development through tenant savings and paid job training (local & targeted hiring)



Increase energy efficiency + offset emissions

Increasing Access

- Minimum 51% of financial benefit goes to reduce tenant energy bills
- Over 35% of applications are in environmental justice communities (DACs)*
- Required job training on each project
 - Goal of 50% of trainees be Local
 OR Targeted Hires*

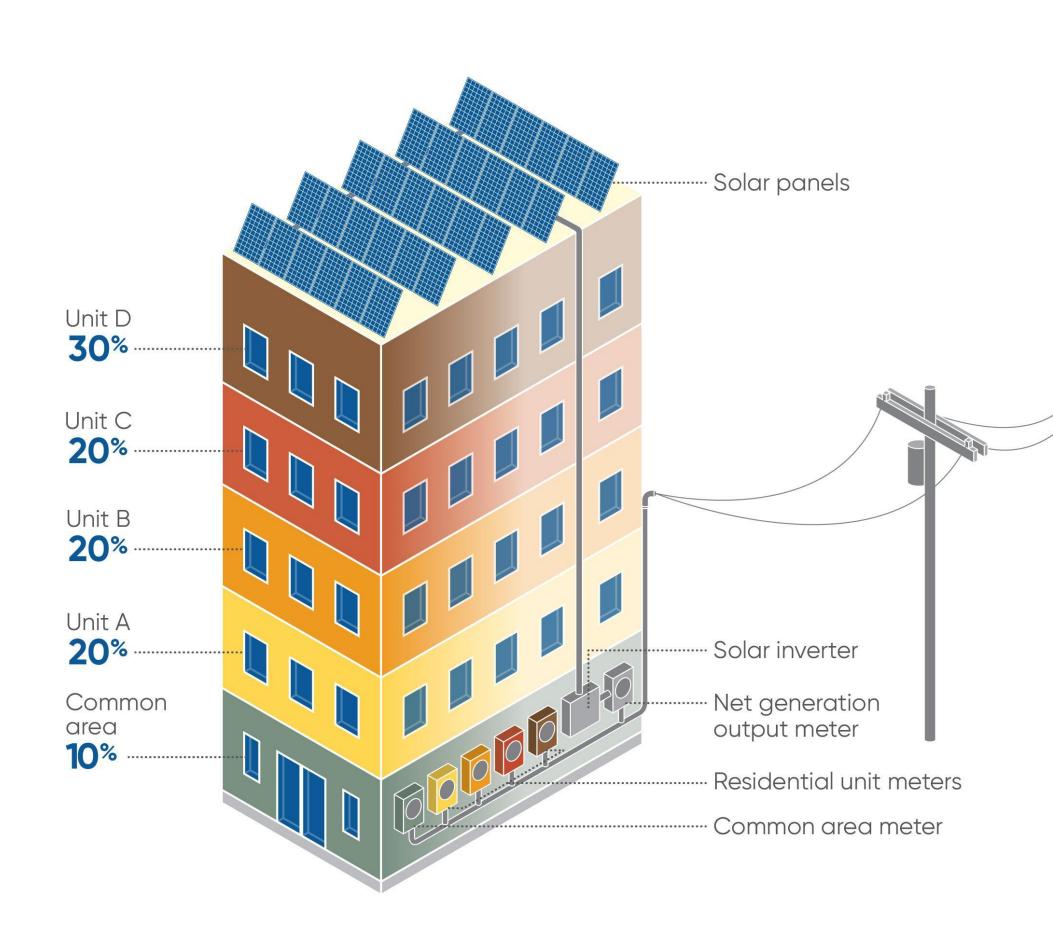


^{*}DACs are defined by <u>CalEnviroScreen</u>, SB 535

^{*}Hires are Residents, women, black and indigenous people of color, justice-impacted, single parents, facing barriers to employment

SOMAH-eligible properties

- Properties with at least 10 years of affordability restrictions remaining
- At least 5 tenant units with individual meters
- One of the following:
 - 80% of property residents have incomes at or below 60 percent of the area median income
 (AMI)
 - Property is located in a defined disadvantaged community (DAC) that scores in the top 25% of census tracts statewide in the CalEnviroScreen



No-Cost Technical & Support Services

Technical assistance (TA) is a free service offered to all SOMAH participants at any time of the project process



TechAssist@calsomah.org

Average Project Snapshot

Average Property Size

81 units

Average System Allocation

87% Tenant

13% Common Area

Average System Size

174 kW

Tenant Savings

77% - 88% savings on utility bills

\$45 - \$61 per month

Avg.	#	
Project Cost	\$665,143	
SOMAH Incentive	\$363,941	
System Size (kW)	~189 kW	

SOMAH offsets ~54% of the project cost

Addressing barriers to participation

- Increasing install costs + SOMAH's annual "step-down" of incentives became a financial barrier
- Removed step-down and increased to Year 1 rates
- Higher incentives are now available!
- Looking forward to seeing impact of new IRA/ITC adders

Tax Credits		\$ per AC Watt Incentive	
ITC	LIHTC	Tenant	Common Area
No	No	\$3.50	\$1.19
Yes	No	\$2.45	\$0.87
No	Yes	\$2.45	\$0.87
Yes	Yes	\$1.75	\$0.65

Building Equity Into SOMAH

- SOMAH's origins: Created through advocacy of EJ orgs and solar industry
- Direct economic benefits for renters baked in via VNEM
- Tenant education and outreach requirements
- Workforce development requirements, with local and priority hiring

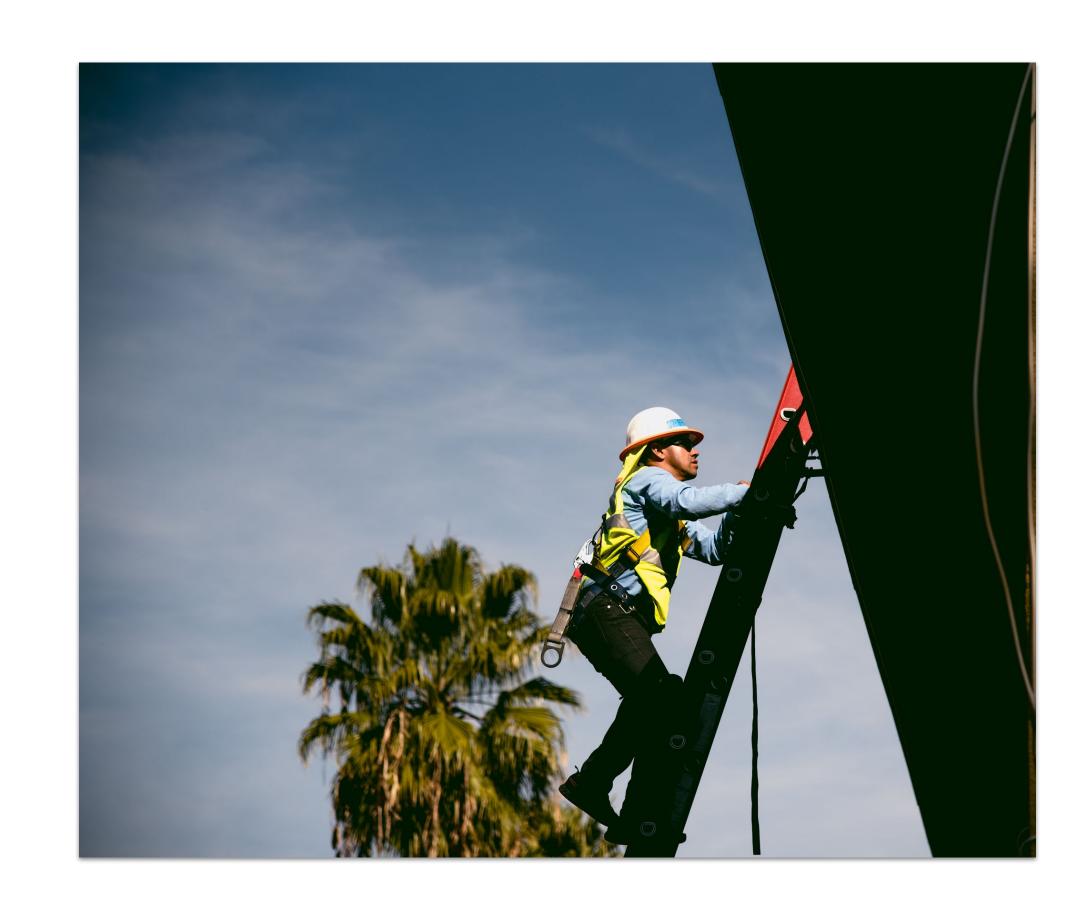






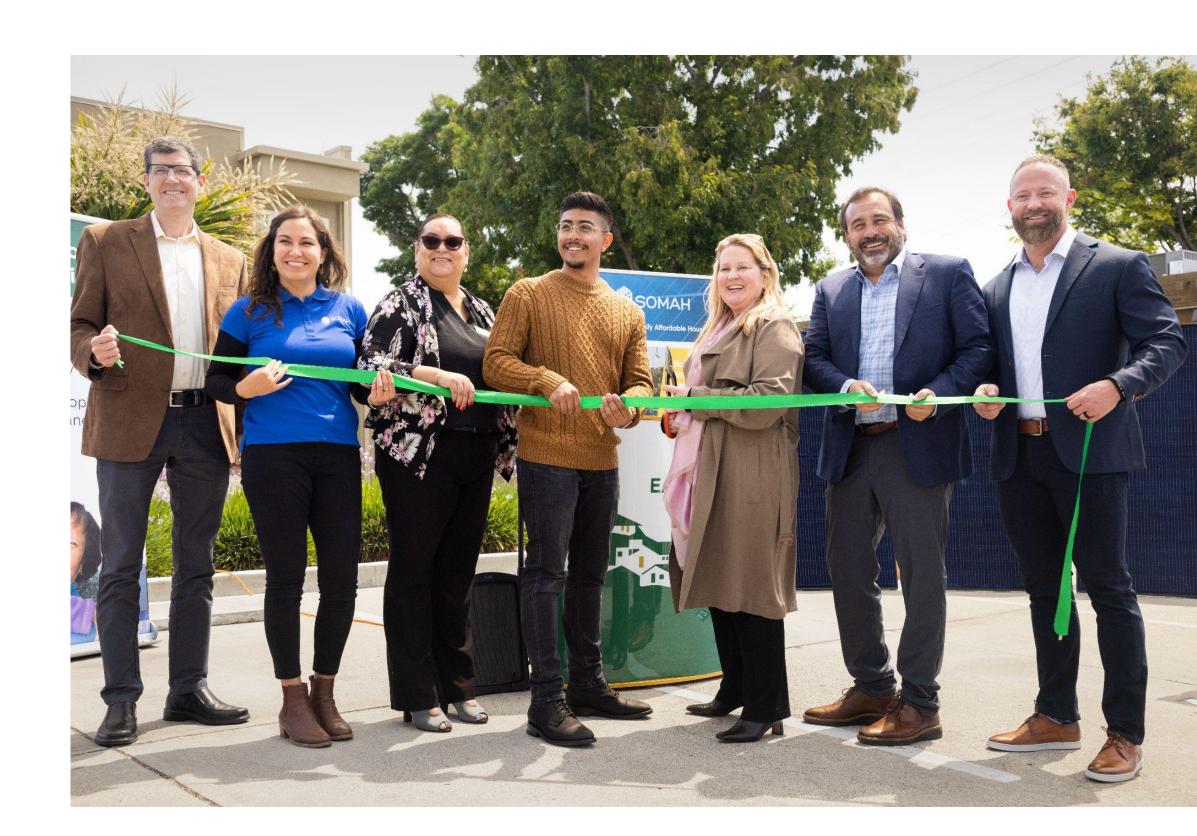
Building Equity Into SOMAH

- Community-based organizations as partners
- Advisory bodies (11-member Advisory Council and 9-member Job Training Org Task Force) and public forums
- No-cost technical assistance
- Consumer protection via bidding tool



Lessons from SOMAH

- Partners, not saviors
- Tribal participation is a specific and unique challenge
- Marketing plan needs to be well-funded and designed to proactively reach your target communities
- Comarketing and other program leveraging to maximize benefits to participants
- Take a proactive approach to addressing barriers to participation







Marisa Villarreal, Program Director

858-244-1177, ext. 5 contact@CalSOMAH.org

www.CalSOMAH.org



Association for Energy Affordability

Bringing the benefits of clean energy & energy efficiency to underserved communities

June 13, 2023

Sheetal Chitnis
Senior Manager, Programs
schitnis@aea.us.org



HOW WE DO IT















Research & Demonstration



REALIZE-CA: Mass Deployment Model for Zero Carbon Retrofits



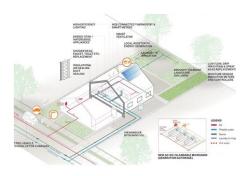
Large Capacity Central CO2 Heat Pump Study



Prefabricated Envelope Solutions for California Low-Rise Buildings



Low GWP Mechanical POD



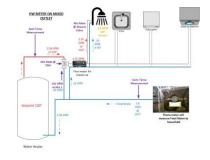
Oakland Ecoblock: ZNE, Low Water-Use Retrofit Neighborhood



Advancing Indoor Air and Environmental Quality Technologies- IAQ Impacts of Gas Cooking



Smart Ceiling Fans &
Communicating
Thermostats to Provide
Energy-Efficient Comfort



Domestic Hot Water Draw Study



Multifamily Building Air Tightness Characterization



DOE Advanced
Building Construction
Collaborative



Policy

Coalition Memberships & Participation

Energy Efficiency for All (EEFA)

➤ EEFA connects climate, health, and equity by bringing energy efficiency to affordable housing.





The Building Decarbonization Coalition (BDC)

➤ BDC unites building industry stakeholders with energy providers, environmental organizations and local governments to power our nation's homes and workspaces with clean energy.

Federal Electrification Policy Coalition

Policy & Energy Burden Sub-Groups

State & Local Regulatory and Legislative Advocacy Efforts in New York & California







Training the Multifamily Workforce & Industry

- Building Operators
- Energy Consultants & Auditors
- Contractors / Trades
- Building Operators
- Architects, Engineers, Design Professionals
- Policy Makers & Program Administrators



Utility

Existing Buildings California Public Utility Commission (CPUC) SOMAH Solar on Multifamily Affordable Housing (SOMAH) Sacramento Municipal Utility District (SMUD) Multifamily Electrification Program SMUD Marin Clean Energy (MCE) Multifamily Energy Efficiency Program Low Income and Families (LIFT) Workforce Education and Training Program Los Angeles Department of Water & Power Pwp. Comprehensive Affordable Multifamily Retrofits (CAMR) City of Palo Alto Multifamily Electrification Program Pacific Gas & Electric (PG&E) WatterSaver **New Construction** Southern California Edison (SCE) Energy Savings Assistance Program New Construction

Federal, State & Local Government

Existing Buildings

Community Services and Development Agency (CSD)

Low Income Weatherization Program (LIWP)



Bay Area Regional Energy Network (BayREN)

Bay Area MF Building Enhancements Program (BAMBE)



South Coast Air Quality Management District

Multifamily Affordable Housing Electrification Program (MAHEP)



Three County Regional Energy Network (3CREN)

Multifamily Electrification Program



California Public Utilities Commission

Technology & Equipment for Clean Heating (TECH)



New Construction

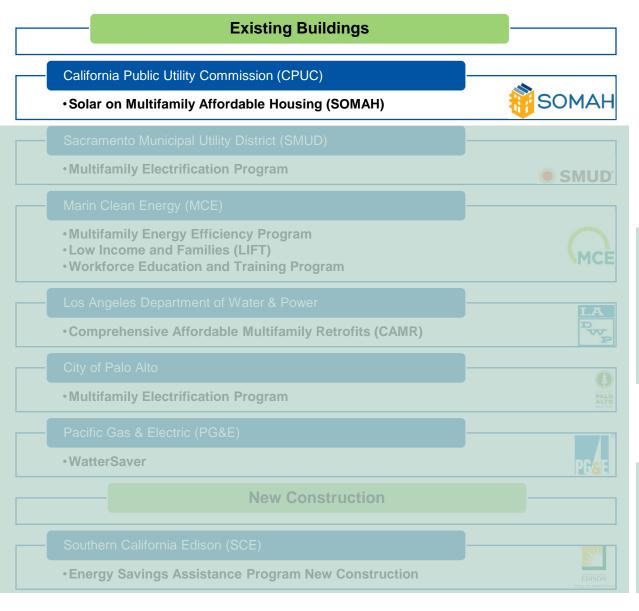
California Energy Commission

Building Initiative for Low Emissions Development (BUILD)





Utility



Federal, State & Local Government

Existing Buildings

Community Services and Development Agency (CSD)

Low Income Weatherization Program (LIWP)



Bay Area Regional Energy Network (BayREN)

Bay Area MF Building Enhancements Program (BAMBE)



Multifamily Affordable Housing Electrification Program (MAHEP)



Multifamily Electrification Program



California Public Utilities Commission

Technology & Equipment for Clean Heating (TECH)



New Construction

Building Initiative for Low Emissions Development (BUILD)
 BUILD







Low Income Weatherization Program (LIWP)

LIWP - Program Overview

- Whole building energy efficiency, solar thermal, and solar PV for multifamily properties under a single program
- Offers financial incentives, property assessments, work scope development, construction management assistance, and quality control
- All measures that result in greenhouse gas (GHG) reductions are eligible
- EE incentives (including solar thermal) are based on the amount of GHGs reduced
- PV incentives are based on the size of the PV system









LIWP - Eligibility Criteria

- One building with at least 5 units or have 20 total units on the property
- Deed restriction or funding commitment by a housing agency
- At least 66% of tenants with incomes < 80% AMI
- Able to achieve modeled energy savings > 15%
 - 25% minimum savings required for projects that leverage other major incentive sources (i.e. TCAC, BAMBE, etc.)
- Must sign Property Affordability Covenant agreeing to maintain LIWP affordability requirements for at least 10 years
- Incentives cannot exceed net project cost
- Maximum of 1500 units per ownership entity/subsidiaries of one entity



LIWP - Required In-unit Upgrades

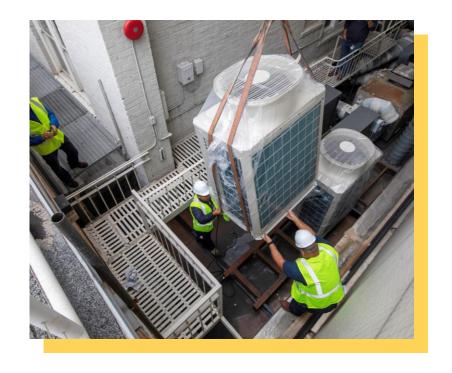
Measure Category	Measure Type	
Water Heating	Low flow kitchen aerators Low flow bathroom aerators Low flow showerheads	<1.8pgm at 60psi <1.2gpm at 60 psi <1.8gpm at 80psi
Heating and Cooling	Duct sealing	Where ducts or plenums are accessible, seal seams and connections with mastic; Seal supply boots to drywall with caulk
Lighting and Appliances	Replace all incandescent and halogen bulbs with LED equivalent Replace any refrigerator manufactured before 1999 rated 750 kWh annual consumption or more	If applicable





LIWP – Possible Upgrades

Measure Category	Measure Type	
Building Shell	Cool roof Roof insulation Attic insulation Wall insulation Floor insulation	Window/sliding door replacement Window coatings Window shading Air sealing
Heating and Cooling	Heating system replacement Cooling system replacement Fan replacement Pump replacement	Duct insulation HVAC system controls Energy Management Systems
Water Heating	Water heater/boiler replacement Variable speed pumps Recirculation controls	Pool, spa pumps and equipment Low flow fixtures (kitchen/bath) Pipe insulation
Lighting and Appliances	Indoor, outdoor, parking lot, and garage lighting	Refrigerators Dishwashers Clothes washer and dryers (incl. common area coin-op)
Renewable Energy	Solar hot water systems (thermal)	Solar photovoltaic





LIWP – Incentives

EE Program Incentives	Tenant Energy Savings Measures	Owner Energy Savings Measures
FY 21-23	\$4,500 per MT GHG	\$3,000 per MT GHG

Solar PV Program Incentives	Tenant Meter PV Systems < 100 kW*	Owner Meter PV System <100 kW* (Common Area or Master Meter)
FY 21-23	Up to 100%	Up to 50%

* Solar PV Incentive is based on:

- Type of leveraged funds (LIHTC, ITC, LADWP) the more leveraged funds,
 the less LIWP funding is needed. Projects are assumed to take ITC
- If PV system is offsetting owner meter or tenant meter consumption
- Size of PV system





TECH Clean California: Multifamily (TECH: MF)

TECH:MF - Eligibility Criteria

- All existing residential buildings qualify
- <u>Multifamily</u>: property with 5 or more dwelling units where multiple replacements are occurring at once **and** installations at buildings with 4 or fewer dwelling units served by a central system
 - Campuses with multiple individual single-family homes all operated by single entity would also be considered multifamily
- The heat pump appliance must be replacing an existing non-heat pump heating source
 - Dual fuel systems are allowed. However, to qualify, the system must a 3component AHRI tested system.



Heat Pump HVAC Systems Serving Individual Apartments

Previous Space Heat	System Type		Total Incentive Per
Source	Description	AHRI Test Standard	System
Non-heat pump systems	Split or rooftop heat pump (ducted or ductless)	210/240	\$2,000
All except PTHPs	PTHP*, SPVHP*, or unitary through the wall/ceiling heat pump	310/380, 390	\$500 (Single or two-stage compressor) \$1,000 (Variable capacity/inverter-driven)

^{*} PTHP: Packaged Terminal Heat Pump; SPVHP: Single Package Vertical Heat Pump

Heat Pump HVAC Systems Serving Multiple Apartments

Previous Space Heat Source	System Type	Total Incentive Per Apartment Served
Non-heat pump systems	HP HVAC equipment serving multiple apartments	\$1,000



Heat Pump HVAC Systems Serving Common Areas

Previous Space Heat Source	System Type	Total Incentive Per System
	Split or rooftop heat pump (ducted or ductless)	\$1,800
Non-heat pump systems	PTHP*, SPVHP*, or unitary through the wall/ceiling heat pump	\$300 (Single or two-stage compressor) \$800 (Variable capacity/inverter-driven)

^{*} PTHP: Packaged Terminal Heat Pump; SPVHP: Single Package Vertical Heat Pump

Multifamily Heat Pump Pool or Spa Heating

Previous Heater Source	System Type	Total Incentive Per System
Non-Heat Pump	Heat pump pool heating	\$2,500



Unitary Heat Pump Water Heaters

Previous Water Heater Source	HPWH Tank Size	Total Incentive Per System
0 (5	< 55 gallons	\$1,400
Gas/Propane	≥ 55 gallons	\$2,100
Electric Resistance	All	\$700

Central Heat Pump Water Heaters

Previous Water Heater Source	HPWH Storage Volume*	Total Incentive Per System
0 /5	< 17 gallons per bedroom served	\$1,200
Gas/Propane	≥ 17 gallons per bedroom served	\$1,800

^{*}Storage volume only includes storage volume of water that can be heated directly by the heat pump components of the plant



Electrical Panel Upgrades

Previous Equipment	System Type	Incentive / Apartment Receiving Electrical Upgrade
Undersized apartment electrical infrastructure that is upgraded as part of an apartment's HPWH or HP HVAC installation	Apartment panel or subpanel upgrades	\$1,400 Apartment unit must have received a TECH-funded HP HVAC and HPWH and must be all-electric after the upgrade



Additional Resources

- LIWP interest form
- TECH MF Equipment requirements
- TECH MF Reservation form completion guide
- TECH MF Budget and incentive caps
- TECH MF Contractor knowledge Base
- AEA Electrification knowledge hub





Maple Gardens

Maple Gardens – Scope of Work

- Wall Insulation
- Attic Insulation
- Windows
- Comprehensive LED Upgrades
- Low-flow Showerheads, Aerators and Toilets
- Refrigerators
- Induction Cooking Ranges
- In-unit Heat Pump Water Heaters
- In-unit Ducted Heat Pump HVAC





Maple Gardens – Incentives & Project Cost

Program Name*	Incentives (\$)
BAMBE	\$70,300
LIWP	\$93,750
TECH MF	\$88,500
SOMAH**	\$14,000***
Total Incentives	\$266,550

^{*} Additional funding through USDA RD loans and HCD Serna (no tax credits)

Measures	Project Cost (\$)
EE + Electrification*	\$560,000
Solar PV	\$0**
Total Cost	\$560,000

^{*} Includes material, labor and electrical costs



^{**} Approx. \$62,000 to SunRun through SOMAH

^{***} Developer fee from SunRun to Eden

^{**} Power Purchase Agreement

Maple Gardens

Special thanks to:

- Staci Givens, AEA Lead TA
- Samantha Meyers, Eden Owner
- Kelly Barsam Kelly, Buena Vista Construction General Contractor
- Solar Installer SunRun
- Program Administrators LIWP, BAMBE, TECH and SOMAH



Thank You!



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CASE STUDY: MAPLE GARDENS

CCEC Forum Emma Barker (she/her) June 13, 2023





OUR MISSION

Eden Housing creates and sustains high-quality affordable housing communities that advance equity and opportunity for all.

165+ properties | 11,000+ homes | 25,000+ residents











MAPLE GARDENS

- In Gilroy, CA
- 18 units of affordable farmworker housing
- Mix of 2 and 3 bedrooms
- Built in the 1980s
- Rehab funded with USDA RD loans and HCD Serna (no tax credits)





REHAB SCOPE



- Exterior replacements of repair of siding, weather barriers, windows and trim
- Community spaces repaired and upgraded
- In-unit improvements include upgraded floors, bathrooms, and kitchens
- Energy and water efficiency improvements













ELECTRIFICATION

- Going all electric!
- Conversion of heating systems, boilers, gas stoves, and clothes dryers to high-efficiency electric appliances
- Adding air conditioning as part of heat pump HVAC
- Piloting induction stoves
- Electric service upgrades
- Layered LIWP, BAYREN, TECH and SOMAH

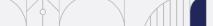


























- Solar Services Agreement (SSA)
- 95% site electricity generated on-site
- Tenants receive ~\$45 credit per month on their PG&E bill
- No cost to developer, owner or tenants ever
- SunRun provides Eden a developer fee







ELECTRIFICATION CHALLENGES

- PG&E coordination and scheduling
- Timeline: long application periods and limited availability
- Electrical upgrades
- Impacts on relocation





















TRANSITIONING TO INDUCTION

- Organizational education and engagement
- Demonstrations
- Resident engagement
- Focus on the benefits!
- Providing cookware
- Positive resident response!



















- Early and often!
- Resident meetings
- Pamphlets and FAQs translated
- Selling the benefits
- Value of a strong management team







MAPLE GARDENS LESSONS LEARNED

- You don't need to be an expert (or know much at all)!
- 2. There are lots of incentives, which will bring down costs
- 3. Programs can benefit both owners/operators and tenants
- 4. Consider your electrical load when electrifying
- Use technical assistance!





Thank you!

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Samantha Meyer (she/her) | Samantha.meyer@edenhousing.org
Senior Project Developer | Eden Housing

