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California's Cap-and-Trade-Funded Low-Income Weatherization Program Multifamily: Impact Report



CALIFORNIA HOUSING PARTNERSHIP

www.chpc.net

The State created the California Housing Partnership in 1988 as a private nonprofit organization with a public mission: to help create and preserve affordable and sustainable homes for low-income Californians by providing expert financial and policy assistance to nonprofit and public partners. Since 2010, we have convened the Green Rental home Energy Efficiency Network (GREEN), with more than 50 nonprofit affordable housing organizations in California, to collaboratively increase access to climate, energy and water resources for affordable housing properties and residents.

The California Housing Partnership has provided outreach, education and financial technical assistance to the Low-Income Weatherization Program for Multifamily Properties' participants since the program launched in 2016. We also work in coalition with Energy Efficiency For All (EEFA) California to advance energy equity programs and policies.

ASSOCIATION FOR ENERGY AFFORDABILITY Inc.

aea.us.org

The Association for Energy Affordability, Inc. is a 501(c)(3) not-for-profit organization dedicated to achieving energy efficiency in new and existing buildings in order to foster and maintain affordable and healthy housing for low-income communities. AEA representatives engage in a broad range of educational and technical services to promote this mission and develop the industry that advances and sustains it.

The California Department of Community Services and Development selected the Association for Energy Affordability to implement the statewide Low-Income Weatherization Program for Multifamily Properties.

Photographed properties and individuals in this report are beneficiaries of LIWP investments in Bayside Properties' Cascade Village in Sacramento and Self-Help Enterprises' Casas de la Viña in Madera, Goshen Village II in Visalia, and North Park in Oildale. Photos of Casas de la Viña by Hector Navejas (www.hectornavejasphoto.com). Photos of Cascade Village by Pamela Palma (<http://www.pamelapalma.com>). Association for Energy Affordability received permission to take and/or use these photos in 2017-2019.

IMPACT REPORT OVERVIEW

Since 2014, the California Department of Community Services and Development (CSD) has administered the **Low Income Weatherization Program** (LIWP) to provide low-income households with solar and energy upgrades and to reduce greenhouse gas emissions. While LIWP serves both multifamily and single-family homes, this impact report focuses on the **Multifamily** component of LIWP, implemented statewide by the Association for Energy Affordability.

In addition to doubling energy efficiency savings targets, **Senate Bill 350** recognized that low-income renters and disadvantaged communities need tailored programs to overcome barriers to adoption of energy upgrades. LIWP Multifamily is the only state program designed to unlock the benefits of energy and solar retrofits for both residents and owners of multifamily low-income housing in underserved communities, through its flexible and comprehensive whole-building approach coupled with advanced technical assistance.

California has committed **\$63.9 million** of California Climate Investment funds to LIWP Multifamily to date. More than 6,949 low-income renter households have been served to date, and over 12,000 households will be served with the funding allocated thus far.

However, the lack of stable, long-term funding is preventing this program from reaching its full potential. **More than 1,000 multifamily buildings, housing approximately 18,000 low-income residents, remain on the program’s waitlist due to the funding shortfall.**¹ The State of California’s Clean Energy in Low Income Multifamily Buildings (CLIMB) Action Plan calls for the State to “establish stable funding for the Low Income Weatherization Program”.²

This report presents findings on the social, economic, and environmental impacts of LIWP Multifamily:

- Key accomplishments
- Serving low-income residents
- Reducing greenhouse gas emissions and advancing building decarbonization
- Building climate resilience and equity
- Providing benefits for farmworker communities
- Supporting preservation of affordable housing



KEY PROGRAM ACCOMPLISHMENTS

The Low-Income Weatherization Program (LIWP) Multifamily reduces greenhouse gas emissions while providing substantial benefits to underserved communities across California.

Key program accomplishments

- **Statewide impact:** Since the program launched in 2016, LIWP Multifamily has served 6,949 households with energy efficiency, solar thermal and solar PV upgrades. Over 12,000 low-income households will be served when all committed retrofits have been completed. The program has committed \$63.9 million to invest in 105 properties in 19 counties in disadvantaged and farmworker communities across the state.³
- **Low-income resident benefits:** Residents of LIWP Multifamily participating properties are projected to save an average of 30% on their energy bills. 4.9 MW of solar PV installed through LIWP Multifamily (74% installed by the program to date) directly reduce tenant utility bills.
- **Deep GHG reductions:** LIWP-funded multifamily properties have reduced overall energy usage by an average of 40%. The program has reduced GHG emissions by 146,204 metric tons of carbon through completed projects to date, equivalent to taking 31,041 vehicles off the road.⁴
- **Building decarbonization:** LIWP Multifamily has reduced reliance on burning fossil fuels onsite in participating properties by offering high-efficiency electrification measures. 68% of LIWP Multifamily participants received heat pumps, which can electrify over 90% of heating and hot water energy use in homes.
- **Climate resilience and equity:** To date, 100% of program funds have been invested in disadvantaged communities, identified by the CalEnviroScreen tool. 53% of LIWP Multifamily committed projects are located in the Central Valley.
- **Farmworker housing:** The LIWP program administrator has committed \$5M of Multifamily program funds to upgrades for farmworker homes.
- **Affordable housing preservation:** Utility bills comprise 18% of operating expenses of multifamily affordable homes, on average.⁵ By drastically reducing operating costs through solar PV and energy efficiency upgrades, owners can replenish their reserves and use cash flows to address deferred maintenance, increase resident services, and develop more affordable housing.



SERVING LOW-INCOME RESIDENTS



A widow and single mother of two young children, Diana Guzmán struggled to find safe, affordable housing until moving into Casas de la Viña, a property in the Central Valley owned by Self-Help Enterprises. As a result of LIWP Multifamily improvements, Guzmán and other residents have benefited from significant utility bill savings. In Guzmán's words, "I'm saving up to \$70 a month on my bills; I'm only paying \$25 for PG&E. That makes a huge difference."⁹

- * Residents of LIWP participating properties save an average of 30% on their energy bills.
- * 74% of solar PV installed through the program yield direct tenant bill savings.

Why benefits for low-income and underserved residents matter

Energy costs have become increasingly unaffordable across California.⁶ Energy burdens disproportionately affect low-income, Black and Latinx households.⁷ Utility shutoffs have increased 50% between 2010 and 2017; energy insecurity now impacts 1 in 4 California utility customers. A utility shutoff can threaten the health and safety of a household and causes displacement.⁸

How LIWP Multifamily achieves this goal

LIWP Multifamily overcomes the challenges of split incentives between property owners and tenants to provide key financial benefits to low-income households with energy insecurity. Further, many LIWP Multifamily measures improve health and safety. Replacing aging combustion appliances reduces the risk of carbon monoxide poisoning. Duct sealing measures reduce allergens and improve indoor air quality. Lighting upgrades can improve safety through better visibility in common areas and exterior spaces.

Real Results: Residents at Self-Help Enterprises' Almond Court in Kern County reduced their monthly energy consumption by 44% through energy efficiency. When including solar PV bill savings, residents are expected to save 67% per month on their utility bills, around \$70 per month per household.

DEEP GREENHOUSE GAS REDUCTIONS AND DECARBONIZATION

- * 68% of LIWP-funded properties received energy efficient heat pumps, which can electrify over 90% of heating and hot water energy use in homes.
- * LIWP-funded electrification projects achieve an average of 42% energy savings¹⁰ and 32% energy utility bill savings, some achieving near net-zero retrofits.

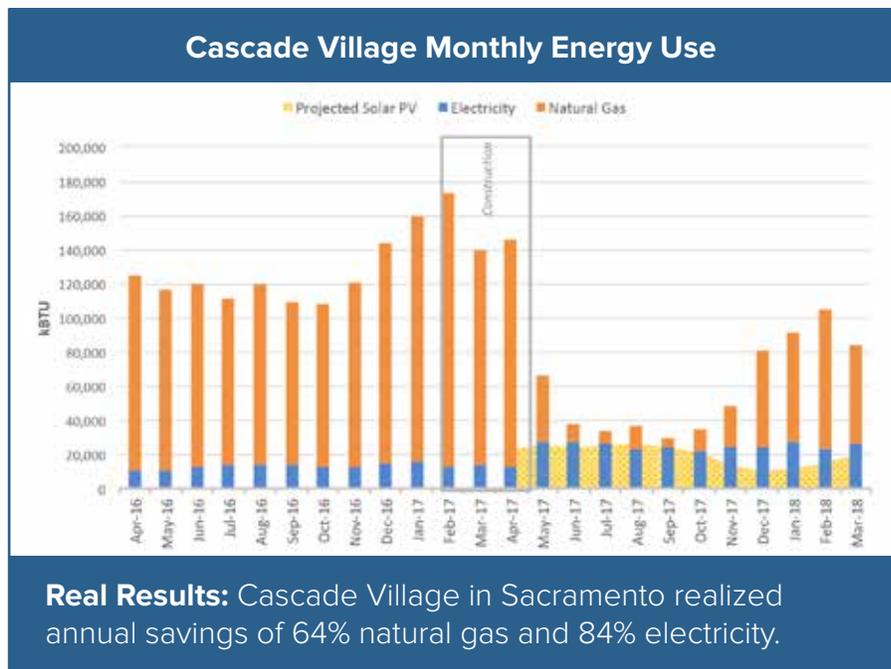
The need for building decarbonization

In 2018, California Governor Brown issued an executive order requiring the state to be carbon neutral by 2045, accelerating the state's existing goal to cut emissions 80 percent below 1990 levels by 2050. To meet this goal, California must rapidly reduce emissions from the building sector, which accounts for 25% of total greenhouse gas (GHG) emissions, second only to transportation as the leading source of climate pollution.¹¹ As California's electricity gets cleaner, the emissions from powering our homes will drop. However, emissions from burning fossil fuels in buildings will not decline until we take action. Transitioning California's existing low-income multifamily housing stock away from fossil fuels will require ambitious, tailored interventions.

How LIWP achieves this policy goal

- **Maximizing GHG emissions reductions:** The scope of LIWP projects is thorough and holistic, integrating energy efficiency and solar (thermal and PV) upgrades that maximize both GHG reductions and energy cost savings. Since utility-based energy efficiency programs primarily serve commercial and industrial customers, LIWP Multifamily provides a critical avenue for multifamily customers to carry out whole-building deep energy retrofits.

- **Proving electrification is possible in affordable housing:** Properties that have participated in LIWP-MF have demonstrated that electrification is indeed possible, and successful, in affordable rental housing.



40% of LIWP projects that received energy-efficient heat pump technology included fuel substitution, switching out natural gas for electricity.

BUILDING CLIMATE RESILIENCE AND EQUITY



- * 100% of program funds have been invested in disadvantaged communities, identified by the CalEnviroScreen tool, to date.
- * 53% of committed LIWP projects are located in the Central Valley, a region disproportionately affected by poverty, pollution and frequent heat waves.
- * 1/3 of properties served by LIWP Multifamily have received high efficiency heating/cooling equipment, and 40% have received high performance window replacements to protect residents from heat waves and cold fronts.

Why foster climate resilience and equity

Californians are witnessing the escalating effects of climate change -- wildfires, landslides, floods and heat waves. Recent disasters have destroyed entire communities and have claimed human lives. While all feel the impacts of climate change, not all communities are equally impacted or prepared to adapt. Low-income and disadvantaged communities bear the biggest brunt of climate change and often have the least resources to respond and adapt when disaster strikes.

Our path toward greater resilience requires a deepened commitment to equity, which ensures that “the people and communities who are least culpable in the warming of the planet, and most vulnerable to the impacts of climate change, do not suffer disproportionately as a result of historical injustice and disinvestment.”¹²

How LIWP achieves this policy goal

- **Fostering energy resilience:** LIWP’s integrated energy efficiency and clean energy upgrades contribute to strengthened grid resilience in historically underserved communities by diversifying resources for energy generation and shifting and reducing peak demand.¹³
- **Fostering economic resilience:** LIWP-funded properties are projected to save low-income residents an average of 30% on energy bills. Lower utility bills help Californians absorb and respond to the growing financial energy burdens brought on by climate change.
- **Safeguarding residents’ health:** Weatherized housing is healthier housing, providing better protection against extreme heat and poor air quality, which in turn improve the comfort and health of low-income renters--particularly children, elderly, and differently abled residents. LIWP Multifamily projects, with their deep energy retrofits, go beyond typical weatherization to provide comprehensive, impactful upgrades that help safeguard residents from an ever-changing climate.

PROVIDING BENEFITS FOR FARMWORKER COMMUNITIES



- * To date, the California Department of Community Services and Development (CSD) has committed \$5M of LIWP Multifamily funding to farmworker housing.
- * In February 2019, CSD expanded program eligibility to include farmworker housing in any community, further broadening access to clean, renewable energy for farmworkers.

About farmworker benefits

Farmworker households are among the state's most impoverished and vulnerable populations due to low wages, seasonal employment and direct exposure to increasingly hostile climatic conditions. Like other low-income families, farmworker families pay a disproportionate amount of their annual incomes on home energy needs, often sacrificing other necessities to pay their energy bills.

Recognizing this critical yet unmet need, the California legislature directed the LIWP program administrator to create a new farmworker housing sub-program.¹⁴

How LIWP achieves this policy goal

- **Supporting health:** LIWP Multifamily retrofits can help farmworker households stay cool during heat waves and can help improve indoor air quality on poor air quality days. At Casas de la Viña, ductwork for all residents was professionally cleaned and sealed, removing allergens that can cause respiratory issues or exacerbate asthma. When coupled with new energy efficient heat pumps, this upgraded HVAC system provides clean, healthy indoor air quality as well as reliable comfort and bill savings to farmworker residents. By switching combustion appliances such as furnaces and water heaters with heat pumps, LIWP Multifamily funds helped to reduce pollutants such as smog and asthma-producing NOx and other combustion by-products.
- **Fostering economic resilience:** Residents at Casas de la Viña, a farmworker community in Madera county, are saving an average of 44% per month from deep energy efficiency upgrades. When coupled with bill credits from resident-benefiting solar installations, this farmworker community is projected to be near net-zero.

LIWP Participant Profile: Self-Help Enterprises

Nonprofit developer Self-Help Enterprises is leveraging LIWP to implement various upgrades across their farmworker portfolio for four properties (69 buildings) in the Central Valley. As a result, 213 farmworker households will benefit from energy savings of up to 95%, including savings from solar PV.¹⁵

SUPPORTING PRESERVATION OF AFFORDABLE HOUSING



* LIWP Multifamily properties have averaged 40% in energy savings.

* 100% of LIWP Multifamily participants installed water-saving measures.

Barriers to affordable housing preservation

California is in a housing crisis, and existing affordable homes are at risk of being lost.¹⁶ To finance energy upgrades when preserving affordable homes, property owners must navigate structural barriers, including complex ownership and financing arrangements, lack of access to capital, limited reserves and staff capacity and tight development and resyndication timelines.

How LIWP overcomes these barriers

- **Enables capital investments that reduce operating expenses:** LIWP incentives make possible whole-building energy upgrades that would otherwise be cost-prohibitive. These upgrades help owners significantly reduce long-term operating costs. With lower operating costs, owners can replenish their reserves and use cash flows to address deferred maintenance and increase resident services.

- **Reduces staff capacity barriers:** LIWP makes it easier for owners to thoroughly evaluate the energy efficiency and solar opportunities at their properties by providing free, expert technical assistance from initial scope development through construction, installation,

and verification. LIWP Multifamily empowers participants to co-leverage other existing resources and programs to achieve maximum savings. The program also makes it easier for owners with properties across multiple utility territories to access incentives through a single program.

TOTAL ENERGY USE	kBTU	Cost
Annual Energy Use Pre-LIWP	717,360	\$13,585.66
Annual Energy Use Post-LIWP	233,716	\$8,192.35
Total Energy Savings	484,644	\$5,393.31
	67%	40%

Real Results: After LIWP Multifamily energy retrofits, Mercy Housing’s ArdenAire Apartments in Sacramento saves 40% per year in operating costs.

CONCLUSION

LIWP Multifamily’s groundbreaking program design has unlocked the benefits of energy efficiency and renewable energy for both owners and residents of multifamily affordable housing. Its flexible and comprehensive whole-building approach coupled with advanced technical assistance has encouraged deep energy retrofits for low-income housing in disadvantaged communities throughout California.

In the words of Betsy McGovern-Garcia, Self-Help’s Real Estate Development Director, *“LIWP Multifamily’s extensive technical assistance, incentive structure and solar PV helped us increase energy savings, improve property cash flows and create renter financial and health benefits above and beyond what we planned to do before leveraging this versatile program.”*

However, the lack of stable, long-term funding prevents this program from reaching its full potential. More than 1,000 multifamily buildings, which house approximately 18,000 residents, remain on the program’s waitlist due to the funding shortfall.



The State of California’s Clean Energy in Low-Income Multifamily Buildings (CLIMB) Action Plan calls for the State to “establish stable funding for the Low-Income Weatherization Program”.¹⁷

METHODOLOGY AND SOURCES

¹California Energy Commission et al., Clean Energy in Low Income Multifamily Buildings (CLIMB) Action Plan, November 2018.

²The number of households served is determined by the number of tenant units receiving LIWP upgrades.

³Program participation, energy savings and bill savings estimates for LIWP Multifamily were reported by program implementer Association for Energy Affordability on March 12, 2019. Savings estimates are projections of the 15-year lifecycle impact of LIWP Multifamily projects and/or aggregated resident and owner utility bill data when available.

⁴This estimate is based on the U.S. Environmental Protection Agency's GHG equivalencies calculator, available at <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.

⁵2018 NAA Survey of Operating Income & Expenses in Rental Apartment Communities: <https://www.naahq.org/news-publications/units/september-2018/article/survey-operating-income-expenses-rental-apartment>

⁶The Utility Reform Network (TURN), Living Without Power: Health Impacts of Utility Shutoffs in California, May 2018.

⁷American Council for an Energy-Efficient Economy and Energy Efficiency For All, Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities, April 2016.

⁸TURN report at pages 9, 18, 25-26.

⁹UpLiftCA, Del Rosario, Johnsen, "Saving Money and Saving Energy in the Central Valley", September 2017. Note that Diana Guzmán's comment on utility bill savings was made before Casas de la Viña added solar.

¹⁰Measured in BTUs, or British Thermal Units, meaning the amount of heat required to raise the temperature of one pound of water by 1° at a constant of one atmosphere.

¹¹Emissions from buildings include methane, electricity generation, fuel combustion and refrigerants.

¹²California Natural Resources Agency, Safeguarding California Plan: 2017 Update, May 2017.

¹³PSE Healthy Energy, Science Summary: Grid Resilience, August 2015.

¹⁴AB 109, Chapter 249, Statutes of 2017, provided \$18 million for FY 2017-18, and Senate Bill (SB) 856 (Chapter 30, Statutes of 2018), provided \$10 million for LIWP during FY 2018-19, with funding focused on low-income multifamily, solar and farmworker programs.

¹⁵Figures are projected over the course of 15 years.

¹⁶California Housing Partnership, California's Affordable Rental Homes At-Risk, February 2019.

¹⁷California Energy Commission with six state agencies, Clean Energy in Low Income Multifamily Buildings (CLIMB) Action Plan, November 2018.

