



Project SunLight

Increasing Access to Solar for Low-Income Households in Multifamily Affordable Housing

Executive Summary

Accelerating solar photovoltaic (PV) adoption in multifamily affordable housing (MFAH) can help the U.S. achieve critical greenhouse gas (GHG) reduction targets, reduce utility bills and help preserve housing affordability for low-income (LI) populations, thus furthering the Federal [Justice40](#) goals. In 2019, International Center for Appropriate and Sustainable Technology (ICAST) was selected by the U.S. Dept. of Energy's (DOE) Solar Energy Technology Office (SETO) to implement Project SunLight, an initiative to overcome the hurdles of deploying solar PV in MFAH. This population has been chronically underserved by clean energy programs, denying the LI tenants access to green solutions that could reduce their utility bills and improve their quality of life.

Deploying solar for MFAH can be complicated, and it requires a thoughtful approach. ICAST created its program in partnership with Utilities, MFAH owners, investors, and other stakeholders to develop several key elements that support solar deployment in MFAH. Before we delve into the details of Project SunLight, we wish to discuss certain facts about solar PV deployment in MFAH:

1. Solar PV is a financial engineering play, not a technology play. Solar equipment is a commodity, with suppliers competing on price. It is the ability of the solar developer to arrange innovative, cost-effective financing that truly differentiates projects.
2. Solar PV has significant volume efficiencies. Deploying at utility scale is three to four times cheaper than deploying on a single-family home, i.e., a 5kW system will cost three or four times more per Watt than a 50MW system. These capital cost savings reduce the cost per kWh of solar generation, and thus reduce the utility bills for the LI residents. Said differently, financial viability for onsite solar on MFAH properties is very hard to justify, especially if the goal is to offer the LI tenants any utility cost savings. This situation is made worse with individually metered properties, i.e., where tenants pay their own bills. Most states do not offer virtual net metering (VNM) that would allow an install of a large solar system for the entire MFAH property and 'virtually' allocate the solar production to the tenants. Lack of VNM means each tenant needs their own solar system, making it almost impossible to justify such an install financially. It is easier to achieve cost savings at the community solar (CS) scale. The obvious hurdle is that few states offer CS options, and those who do have small quotas that have immense competition, so it is not a scalable model. Additionally, most states that do offer CS have made a mess of their LI allocation by requiring each project to have a LI component, thereby **increasing the cost of the project for everyone**. Instead, a policy to deploy 100% LI CS projects would have yielded better costs for both the LI and other subscribers.

3. MFAH properties have their own set of unique problems, which is why this market segment is almost always neglected by most green programs. They are primarily commercial properties for residential use. They can have individual residential electric meters on residential utility rates, and/or house meters on commercial rates (which typically imply the kWh rates are very low but there is a demand charge that can make up 50% or more of the utility bill). They can have tenant-paid utilities or owner-paid utilities. The tenant may have utility allowance as part of their rent subsidy, which may or may not be adjusted. The owner must spend the funds for green upgrades, but the tenants end up saving money on their utility bills (referred to as the “split-incentive”). Subsidized properties are heavily regulated and performing any green upgrades requires a slew of approvals and processes that can be daunting to most and can still end up as failures (permission can be denied by regulators or investors).

The last three years have been significant with the passage of the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA). Keeping our macro-level perspective as outlined above, below are some key recommendations from our work with Project SunLight:

1. For onsite solar on MFAH properties, if the goal is to offer savings on utility bills to the LI tenants, then working with “Wall Street” investors will not help you achieve that goal. Investor returns invariably will squeeze the project pro forma to afford any discount to the LI tenants. Even with the IRA allowing transferability of Investment Tax Credit (ITC) or a cash value for nonprofits, it’s a tough project to financially justify without any additional incentives. ICAST conducted a sensitivity analysis for the viability of solar PV for MFAH properties. It varied the solar rate (discount to the LI tenants) and any incentives available for the project (via BIL, IRA, solar renewable energy credits (SRECs), utility rebates, state incentives or grants) to arrive at a cash flow positive project that also achieves a debt-service coverage ratio (DSCR) of 1.15 (to allow debt financing). The results show that incentives are needed in almost all markets to make onsite solar viable in the MFAH market.
2. Volume efficiencies can provide a discount to LI tenants for community-scale solar. This is the optimal solution from a pure financial analysis basis. However, as explained above, due to lack of scale of CS programs and the ‘poor’ design that most offer, it is not as scalable as it has the potential to be.
3. ICAST has standardized its processes, documents, and contracts to reduce administrative costs, which translates to higher discounts for the LI residents.
4. ICAST has been advocating for subscribing the entire MFAH property so that there is no need to conduct LI certifications each year for each tenant, which also reduces administrative costs significantly and thus benefits the LI residents. Unfortunately, most utility and CS programs do not allow this – YET.

ICAST has not yet discovered a silver bullet solution that is scalable and replicable, which can also reduce or eliminate the need for program subsidies. But reduced risks and administrative burden allows for lower costs for the solar PV project, which translates to lower utility bills for the LI tenants.

The good news is that recent federal legislation is turning the solar landscape on its head. Following the signing of the BIL and IRA into law, the Solar and Battery Energy Storage System (BESS) ITC is now increased to 30% for 10 years, plus another 20% bonus ITC for MFAH, if the owners are willing to share the savings with their LI tenants. With IRA subsidies, solar is finally more accessible to LI residents. The ITC is eligible for direct pay and transferability. The IRA has changed the equation for MFAH where solar PV can be at no cost to the MFAH developer when braided with Low-Income Housing Tax Credit (LIHTC) and other incentives. The coming years will see a rapid scaling for Project SunLight and other programs who wish to achieve similar goals.