Solar Energy

Promoting Sustainability and Decarbonization

There are new funding opportunities available to help building owners implement and access renewable energy. This guide provides background information on opportunities and resources to help HUD program participants invest in solar energy systems for their properties by:

- **Describing the benefit of installing solar energy systems;**
- **Explaining key topics to consider when planning to invest in solar energy;**
- **Providing information on the major pathways for solar energy implementation; and**
- **Identifying funding that can be used to access and install solar energy systems.**

Why is solar energy important?

Installing solar energy systems can provide many benefits including lower greenhouse gas emissions, lower utility bills, and stored energy to use during power outages. They are available in many forms, such as rooftop panels, ground mounted panels, side-mounted panels, or parking canopies. It is also possible to incorporate solar building materials such as solar shingles, solar siding, or solar windows.

HUD program participants have a variety of pathways to access solar energy, depending on their circumstances:

- **Investing** in direct ownership by purchasing the solar energy system for a building;
- **Leasing** an on-site solar energy system from an entity that has paid for the system; or
- **Participating** in an off-site community solar program through a lease or a subscription.

Solar energy projects benefit from **benchmarking** data and the goal setting provided by **energy standard** selection. Additionally, solar energy projects support other aspects of sustainability and decarbonization such as **energy efficiency** and **climate resilience**.

How Residents Benefit from Solar Programs

Many solar programs require residents share in the financial benefit of the solar energy projects as a condition of the program. This financial benefit can be a discount or credit on a utility bill or the provision of other benefits to residents.

HUD established solar program guidance to make it easier for program participants to understand, access, and benefit from solar programs.

HUD Communities have three main pathways to access solar energy: solar ownership, on-site leasing, and community solar. Each has different costs and benefits, so it is important to choose the type of solar that works best for your property. The rest of this document describes each pathway in more detail.

Solar Ownership:

One way that building owners can access solar energy technology is by purchasing it themselves. Solar ownership may require a larger upfront investment, but it provides long-term benefits through increased property value and decreased utility costs. This pathway to solar energy allows the building owner to have the most control over the system. Ownership of these systems allows property owners to access the following tools:

- **Energy Savings Performance Contracts** allow a building owner to pay for the cost of solar projects through the resulting energy savings**—eliminating up-front costs**. A third party **Energy Services Company** is a project partner that helps plan, finance, install, and monitor projects.
- **Net Metering** allows a building owner to benefit financially from surplus energy generated by a solar array on their building. It does so by measuring energy usage (metering), calculating the solar energy generated, and providing a credit on the building's utility bill for energy given to the grid and not used on-site. Rules around net metering vary by state, but can be a financial benefit to owners.
- **Tax credits** may be available: see the funding opportunities section of this document for more information.
- **Solar Renewable Energy Certificate (SREC)** markets may be available to owners. Some states have created markets which allow owners to sell certificates associated with their systems' energy output, effectively reducing the cost of their electricity.

Some other key considerations for owning or implementing solar energy are:

- **Site preparation** such as tree and roof work to ensure that a building is ready to effectively and safely implement a solar energy system.
- **Battery storage** to save surplus energy for later use and decrease electricity demand on the grid during peak hours, contributing to the building's **energy independence**. Battery storage also supports a building's **climate resilience** by maintaining essential systems during power outages and extreme weather events to keep people sheltered, comfortable, and safe.
- **Microgrid controllers** to efficiently switch a building between using power from the building's renewable energy system or the electrical grid. This improvement can help a building save money and decrease strain on the electrical grid by switching off the grid during peak demand.

Solar Ownership in Action: 777 Main Street, Hartford, Connecticut

A developer in Connecticut invested $80 million by braiding multiple funding sources to transform an office building into a 285-unit residential project that now has a 115kW rooftop solar array, a 400 kW fuel cell for added energy production, and a microgrid. These improvements cover about two-thirds of 777 Main Street's energy usage, which translates to almost $750,000 in savings each year. The developer noted that additional battery storage would decrease utility costs even further. Plus, each unit is individually metered, so residents only pay for the utilities they use and are encouraged to reduce use through a variety of in-unit efficiency technologies.

On-Site Solar Leasing:

An alternative to owning a solar energy system, which requires ongoing financing and maintenance, is to lease the technology from a private solar company. This is done through a financial arrangement between the solar company and the building owner called a **solar power purchase agreement (SPPA)**. The private company owns the solar energy system, while the building owner agrees to host the system on their property and to purchase solar energy from the private company for a predetermined time period.

A key distinction between on-site leasing and ownership is the upfront cost required to purchase and install solar energy technology. Leasing may be a more feasible option that still allows a building owner to have solar energy infrastructure in their buildings.

On-site SPPAs in Action: Washington, D.C.

In 2015, Washington, D.C. entered into two SPPAs that provide the District with 11 to 12 MW of electricity through on-site solar photovoltaic systems installed on the roofs and parking lots of District-owned facilities. The SPPAs saved District taxpayers tens of millions of dollars, guarded against energy price volatility, catalyzed $25 million in local spending, and employed more than 190 people during the solar energy system's construction.

Community Solar:

Community solar allows households and businesses to access the benefits of solar energy even if they are unable to host an on-site solar project. Accessing solar energy through an off-site community solar project involves a building owner partnering with a solar provider either through a subscription or an SPPA. Building owners are allowed to look outside their home state and access electricity from community solar projects across the country. The Department of Energy recommends contacting local utility companies and searching online to find community solar opportunities.

Tenants are also able to individually access the benefits of community solar if they live in a building where they pay their own utilities. The tenant subscribes to a community solar project, and then receives a credit on their electric utility bill. This credit is based on the amount of energy that the community solar project produces, and what percentage of that energy the tenant has purchased.

Community Solar in Action: Maplewood Solar Farm and Arlington, Virginia

Arlington County uses 100% renewable electricity at all county facilities. They accomplished this ambitious goal by partnering with the Maplewood Solar project in Pittsylvania County, a utility-scale solar farm that produces enough energy to power 30,000 homes. Maplewood supplies more than 80% of the renewable electricity Arlington County uses. This is an example of using off-site community solar to access energy from over 200 miles away.

Funding for solar energy projects available to HUD communities

Funding Opportunities for Solar Ownership:

- **The Investment Tax Credit** (ITC) is given to taxpayers who implement renewable energy systems or battery storage systems. Under **Direct Pay**, a provision of the Inflation Reduction Act, nonprofits, municipalities, Tribes, and Public Housing Authorities (PHAs) can use the ITC even though they do not pay taxes. The credit reimburses building owners for a base credit up to 30% of project costs. This base credit can be increased up to a total of 70% of the project costs through bonus credits.
- **ITC Bonus Credits:**
  - **The Low-Income Communities Bonus Credit** provides a 10% increase to the base ITC for renewable energy projects in low-income communities or on Indian land, and a 20% increase for projects in low-income housing. Building owners must apply to obtain an allocation from the Department of Energy (DOE) to claim this bonus.
  - **The Energy Community Bonus Credit** provides a 10% increase to the base ITC for projects that are located in an energy community. Treasury guidance determines bonus eligibility.
  - **The Domestic Content Bonus Credit** provides a 10% increase to the base ITC for projects that use domestically sourced materials. Treasury guidance determines bonus eligibility.
- **The Greenhouse Gas Reduction Fund** through the Environmental Protection Agency (EPA) has three programs that each provide a different pathway for financing solar projects. The **National Clean Investment Fund** and the **Clean Communities Investment Accelerator** provide new funding through non-profits in partnership with private sector entities and local community lenders. **Solar for All** provides grants to states and other entities to fund solar projects. Each program focuses on facilitating solar projects that benefit low-income and disadvantaged communities.

HUD Energy Branch Opportunities:

The Energy Branch in the Office of Public Housing Programs provides incentive programs that help PHAs fund energy efficiency and renewable energy projects.

- **The Rate Reduction Incentive** program enables PHAs to keep half of their annual savings from measures that decrease their utility bill. This includes all three pathways for accessing solar energy.
- **The Small Rural Frozen Rolling Base** program allows small rural PHAs to use the savings from efficiency projects, such as adding solar energy, for other eligible housing activities.
- **Energy Performance Contracts** (EPCs), which are similar to energy savings performance contracts, are also supported by the Energy Branch.
- **The Utility Partnership Program** is similar to an EPC, but the main difference is that PHAs can partner with their utility companies rather than a third party to finance building improvements.

For more funding opportunities, visit the *Build for the Future* Funding Navigator on HUD Exchange and select the "Energy Efficiency and Renewables" project type in the first drop-down box and the "Solar" project subtype in the second drop-down box.