



# Renewable Energy

## A Clean Energy Solution for Housing Credit Properties

2023

Interest and demand for renewable energy – sourced from naturally replenished sources, like the sun, wind, and geothermal, that do not run out – is growing as communities seek to tackle the climate crisis and individuals look for ways to reduce the volatile cost of energy. Historically, installing renewable energy systems was not financially feasible for many Americans, keeping the benefits of renewable energy – such as access to resilient and clean energy sources, lower utility bills, and less exposure to pollution – out of reach for many. This is especially important for low-income households, for whom the national average share of income spent on energy costs is three times higher than other households. Despite the many benefits for lower-income households, [DOE's Solar Futures Study](#) found that only 31% of residential solar serves households that earn less than the area median income (AMI).

In recent years, however, there have been concerted efforts by federal, state, and local governments to ensure that the benefits of renewable energy are more equitably distributed. The Inflation Reduction Act (IRA), passed in 2022 includes several provisions to achieve this, including targeted [tax credits](#) and [funding for deploying solar](#) in low-income communities. Affordable housing is a natural means to deliver the benefits of renewable energy to lower income households, because it already aims to serve lower income households. When paired with renewable energy systems, affordable housing can reduce the overall cost of housing for both owners and residents over the long haul. In addition, increased use of renewable energy systems and sources in affordable housing helps to deliver healthier indoor air quality, and more reliable and resilient power. Housing Finance Agencies (HFAs) play an important role in driving investment in renewable energy in affordable housing given their role in allocating [Low-Income Housing Tax Credits \(Housing Credits\)](#), which serve as a critical source of financing for many projects.

The following analysis, which examined 53<sup>1</sup> [Qualified Allocation Plans \(QAPs\)](#) released before [March 2023](#), provides insight into how state and local HFAs ensure low-income renters benefit from renewable energy sources through more climate-friendly, healthy Housing Credit properties.

### Renewable Energy in Housing Credit Properties

At least 23 HFAs explicitly include renewable energy in their QAP, by either encouraging or requiring developers to incorporate it into their

**23** OUT OF  
53 HFAs

explicitly require or  
incentive the incorporation  
of renewable energy  
sources

<sup>1</sup> All 50 states, plus DC, New York City and Chicago

projects. While few HFAs define the desired source of renewable energy, the most common types of renewable energy sources supported in QAPs are:

- **Geothermal**<sup>2</sup>;
- **Solar**<sup>3</sup>; and
- **Wind**.<sup>4</sup>

Energy generated from these renewable sources is used to power electrical equipment in units, heating and cooling systems, hot water heaters, and other systems critical for building functions. While some climates and locations may be better suited for one type of renewable energy, use of geothermal, solar, and wind-powered energy in affordable housing provides similar benefits: access to resilient and clean energy sources, lower utility bills, and less resident exposure to pollution.

As demonstrated in Figure 1, solar is by far the most common type of renewable energy that HFAs either require or incentivize in their Housing Credit projects. Of the **18 QAPs that include solar as a renewable energy** source option, at least nine agencies require that developers complete a solar feasibility analysis, meet solar-ready requirements, or install solar panels onsite, and at least 11 provide point incentives to use solar as an energy source.

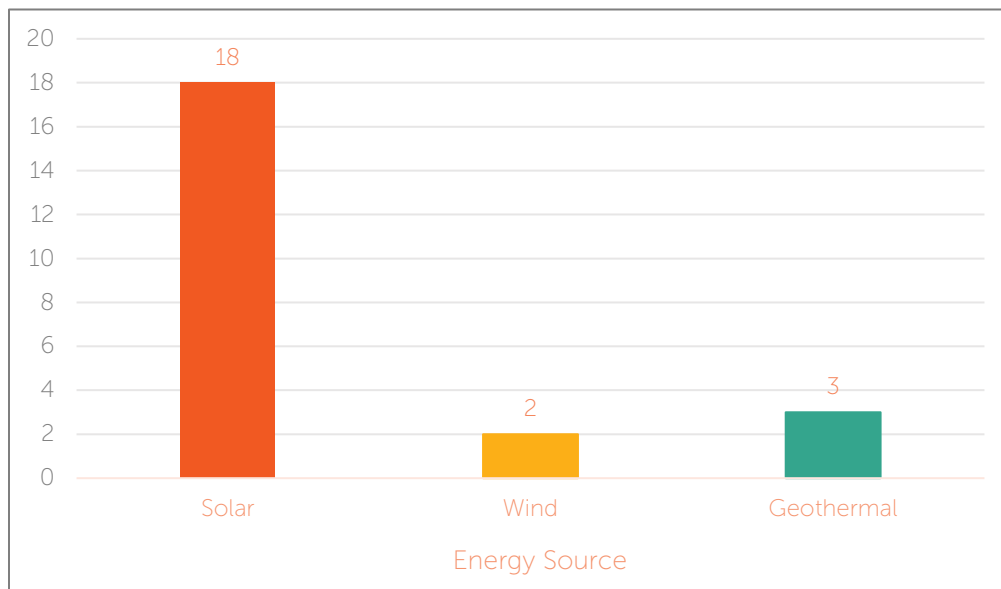
**18** OUT OF 53 HFAs

include solar as a renewable energy source option

**11** OUT OF 53 HFAs

provide point incentives for using solar as an energy source.

**FIGURE 1: Number of QAPs that Specify Types of Renewable Energy**



Housing Credit properties may also be encouraged to include renewable energy systems through third party green building standards in their state's QAP.

<sup>2</sup> Geothermal energy is heat pulled from the earth; by drawing fluids from deep underground reservoirs to produce steam, turbines are then continually powered by produce renewable electricity.

<sup>3</sup> Solar power captures sunlight in panels, which convert light into energy.

<sup>4</sup> Wind energy is created through wind turbines wherein the wind turns turbine blades to create electricity.

*For more information on how HFAs incorporate these standards, read [NHT's Infobrief on Third Party Green Building Standards](#).*

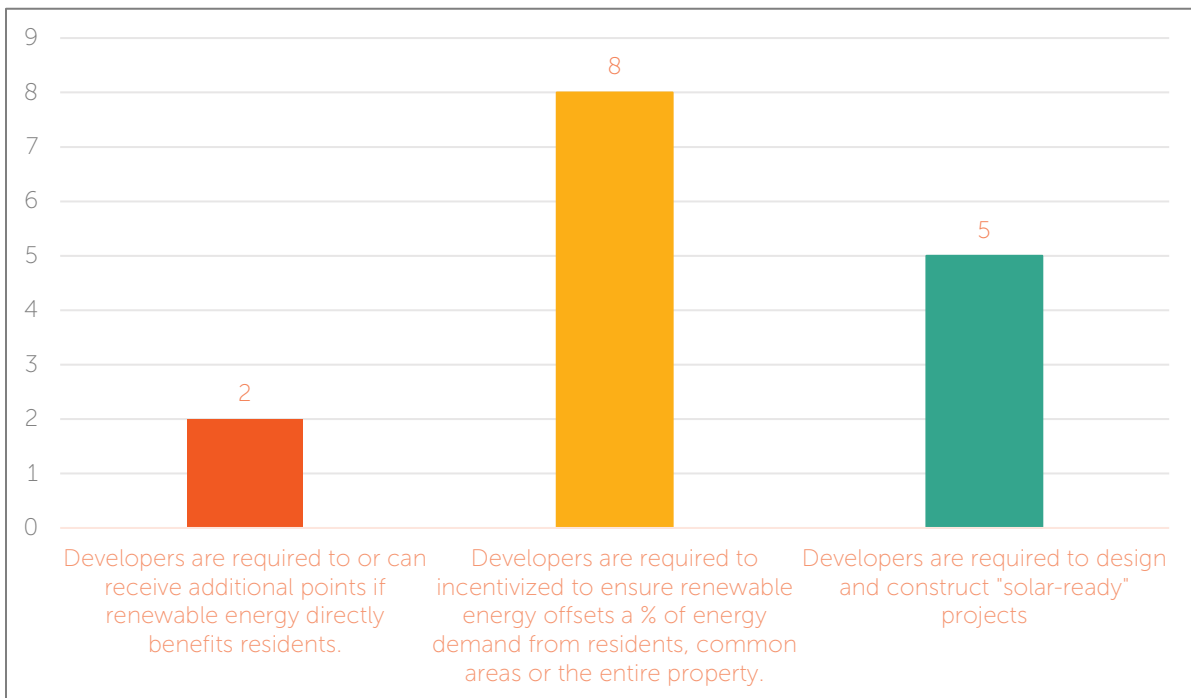
In addition to requirements or incentives for adding solar, some agencies also require developers to provide direct benefits to tenants. This can be done by offsetting a specific share of utility costs per unit each year.<sup>5</sup> In addition, QAPs may require the renewable energy generated provide a pre-set share of building energy demand. This can be done by requiring that renewable sources provide sufficient energy to power common area lighting (generally 5-90%) or a share of total energy load for each unit (generally 25-30%) with additional points available to developers who exceed minimum levels.

In instances where a QAP does not require Housing Credit projects to use solar or other renewable energy sources, some QAPs may nevertheless require developers to design a solar-ready building. A solar-ready building is designed and constructed for future solar system installations and may include, for example, a shade-free roof suitable for solar panels. To qualify for QAP points, developers usually must complete a solar feasibility study to determine if a project is well-suited for onsite solar installation, or a cost benefit analysis to indicate the projected life-cycle system costs and estimated financial savings.

## SOLAR-READY

Buildings designed and constructed for future solar systems installation.

**FIGURE 2: Additional Renewable Energy Elements by Number of QAPs**



<sup>5</sup> Due to metering regulations in some states, providing direct benefits to tenants is not always an option. The US Department of Housing and Urban Development has released guidance that outlines methods landlords can follow to ensure residents benefit from renewable energy.

## Washington, D.C.'s Approach to Solar

Even though 18 states incentivize clean energy solutions in their QAPs, there are often systemic barriers that prevent the successful implementation of solar energy as an accessible source of energy across Housing Credit properties. Grid capacity, interconnection costs, and energy production requirements imposed by utility providers are all barriers to bringing the benefits of solar to affordable housing communities.

Washington D.C. provides an example of how to use legislation and clear targets to establish a successful framework to ensure solar energy reaches all residents in the District. Through a program called Solar for All – and with support from local government agencies, utility providers, and public and private organizations – D.C.'s Department of Energy and Environment (DOEE) promotes the use of solar energy through rooftop installation on residential buildings as well as through community solar projects. The Solar for All program distributes the energy generated from these sources throughout the community, thereby reducing utility costs for low-income residents across the city. DOEE anticipates Solar for All participants will see 50% savings on their electricity bills over 15 years.

D.C.'s Department of Housing and Community Development (DHCD) has leveraged these existing programs and policies to ensure solar energy is prioritized in affordable housing. D.C.'s 2021 QAP requires all Housing Credit projects in the District to either include solar panels or qualify as a Solar-Ready Building.

### The Role of Solar for Resiliency Hubs

In addition to using renewable energy to offset property-level demand, onsite solar allows affordable housing owners to power resiliency hubs. A resiliency hub is a common-area facility used to support residents, provide backup power, and more effectively distribute resources during and after a natural disaster, such as a flood, hurricane, or tornado. Resiliency hubs can also include space for residents to gather if they cannot stay in their unit, refrigerators to keep medicine cold, access to potable water, and the use of charging stations for personal devices. These facilities are often located in the property's community space or other common areas.



## RESILIENCY HUB

A facility used to support residents, provide backup power and distribute resource during and after a natural disaster.

## Resiliency Hubs Across the Country



While some states include explicit language in their QAPs about resiliency hubs, many other states require or incentivize elements of these facilities, such as requiring backup power to critical systems and access to potable water. HFAs are not the only agencies or organizations encouraging developers to include these facilities in their affordable housing properties. Washington, D.C.'s Department of Energy and Environment has designed resiliency hub pilot projects; Maryland's Energy Administration offers a grant program to support the development of these hubs; and Orlando, Florida has been able to use HUD funding to transform community centers into resiliency hubs.

## Federal Funding for Renewable Energy Solutions

While renewable energy is increasingly seen as a dependable and clean energy source, it is still not accessible to all Housing Credit developers across the country. The cost and complexity of installing and maintaining solar systems remain barriers to widespread use of renewable power sources. However, transitioning from fossil fuel systems to renewable energy sources is critical to ensure the sustainability and quality of affordable housing in the face of growing climate risks.

**\$370** BILLION IN FUNDING

The Inflation Reduction Act (IRA) provides \$370 billion in funding to support the investment of clean energy solutions.

The [Inflation Reduction Act \(IRA\)](#) provides \$370 billion in funding and tax credits to support investments in clean energy solutions, including solar in affordable housing. Federal agencies tasked with distributing this money have allocated funds to increase access to renewable energy for low-income households through the following programs:

- **HUD's Green and Resilient Retrofit Program (GRRP)** provides \$40,000 - \$80,000 per dwelling unit (or \$750,000 - \$20M per property) to incorporate renewable energy sources among other sustainability improvements for HUD-assisted housing.
- **IRS's Low-Income Communities Bonus Credit Program (48(e))** provides a more generous tax credit to encourage the investment of solar and wind facilities in low-income communities, including federally subsidized affordable housing properties.
- **EPA's Greenhouse Gas Reduction Fund (GGRF)** prioritizes the construction of distributed energy – such as rooftop and community solar projects – in low-income and disadvantaged communities, including through the \$7 billion Solar for All competition.

## Conclusion

The source of energy used in Housing Credit properties impacts not only the building and the climate, but also the health and well-being of building residents. For this reason, it is increasingly important that HFAs encourage affordable housing developers to include renewable energy sources in their projects to create safe, healthy, and resilient homes for low-income residents, while also reducing carbon emissions. HFAs can support these efforts by incentivizing developers to include renewable energy systems to power units and common areas, and ensure the benefits are passed along to tenants. IRA funding is a critically important resource for these types of system installments, and can augment ongoing local, state, and federal efforts to ensure renewable energy is more equitably incorporated into Housing Credit properties.

Learn more about how QAPs can accelerate the affordability, opportunities, and sustainability of affordable housing on our [QAP analysis home page](#).



Solar Array at Channel Square Apartments, Washington, D.C.

**TABLE 1: State Requirements and Incentives for Renewable Energy**

STATE	ENERGY TYPE	REQUIRED	INCENTIVIZED	OTHER REQUIREMENTS
AK	Does not specify		X	
CA	Solar		X	
CT	Solar (PV System)		X	
DC	Solar	X		DOE Solar Ready Building (if solar panels are not included)
DE	Solar (PV) <sup>6</sup>		X	
HI	Solar (hot water system)	X		Comparative analysis for cost benefit of conventional water heating system vs solar water heating system
Chicago	Does not specify	X	X	Must provide renewable energy capacity to meet at least 3% of the modeled energy use for the project at full occupancy
MA	Solar (PV, hot water) Wind Hydro-Electric		X	Assessment for "solar PV ready"
MD	"Solar, geothermal, etc"		X	
ME	Solar (PV panels)	X		Electrical wiring to support future PV solar panel installation
MN	Solar (passive solar heating and cooling and PV/solar hot water ready)		X	
MT	Solar (PV panels and hot water system)		X	
ND	Solar (PV panels) Geo-Exchange heating and cooling	X		
NE	Geothermal Solar		X	
NV	"e.g., photovoltaics, wind power"		X	
NY	Solar (PV)	X		Solar feasibility study
NYC	Solar	X		Solar feasibility study (as part of Enterprise Green Communities criteria)
OR	Solar (solar-thermal or solar-electric)	X		Solar Ready Building
RI	Solar (PV panels) Other renewables		X	Solar PV Array Study
TX	Solar		X	
VA	"renewable energy electric system"		X	
VT	"on-site and community based renewable generation"		X	
WA	Solar (PV panels)	X		Design must accommodate future PV system installation

<sup>6</sup> Included in state's QAP language for resilience hub: "Back-up power may be a generator or solar PV + battery storage system." Developers can receive 3 points.