



FLEXIBLE FINANCIAL CREDIT AGREEMENTS

MODEL BRIEF

Solar Revenues To Retire Arrears

Low- and moderate-income (LMI) households historically have been underrepresented in the solar photovoltaic (PV) market. Increasing LMI household participation may be facilitated through Flexible Financial Credit Agreements (FFCAs).

An FFCA is an innovative financial or programmatic product that addresses underlying financial barriers for potential LMI solar customers, such as long-term contracting requirements, nontransferable solar subscriptions, credit score hurdles, seasonal income fluctuation, product or vendor skepticism, and limited mechanisms for multiplying or leveraging benefits.

This brief focuses on the Solar Revenues To Retire Arrears model, in which utilities utilize solar revenues to retire utility debts for customers behind on payments.

Model Description

The Solar Revenues To Retire Arrears financial model aims to increase access to solar for LMI households by having utilities take the revenues from solar installations to pay off overdue utility bills from customers (also called retiring arrears). At its core, this model involves monetizing the value of installing solar (whether through savings, revenues, or another vehicle) in order to retire utility arrears.

Given the focus on retiring arrears, utilities are the only entities that can implement this model. However, they could receive financial support from other entities, such as community solar projects, through low-income carve-outs. The financial and legal arrangements of this approach would likely work within the existing frameworks that utilities already use with their customers, and as such, they would be relatively simple. However, because this model has not been implemented before using solar assets, programs may require regulatory clarification in order to allow investor-owned utilities to use solar revenues to retire arrears.

This model can serve LMI households because these households are disproportionately likely to owe money on their electricity bills. Studies show that half of the households facing trouble paying their energy bills had an annual household income of less than \$20,000 (EIA). Furthermore, when analyzing households with a high energy burden (who are more likely to struggle to pay their electricity bills), studies showed that, in most states, households in poverty made up about 90% of the total (Senate Energy & Natural Resource Committee). Given that LMI households are much more likely to have trouble paying electricity bills, this model indirectly enables them to benefit disproportionately from increased solar usage (and may also offer direct benefits through community solar participation).

Similar Examples

Utilities have implemented two types of arrears retirement programs in the past: arrears management programs (AMPs) and payment assistance funds. These examples differ from the solar model because they utilize different methods to obtain funding to retire arrears.

AMPs help customers pay off electricity bill debt by encouraging them to make payments on time. Customers who meet eligibility requirements can sign up for AMPs, and over a certain period of time (usually a year), the utility will reduce their electricity debt for every on-time payment by a corresponding proportion. The specific debt reduction proportions and the lengths of the programs differ based on the specific utility's implementation. A number of utilities across various states have implemented AMPs (notably Massachusetts, Maine, California, and Connecticut), and an increasing number of utilities have implemented AMPs due to the COVID-19 pandemic, which has drastically increased unpaid utility bills across the country (e.g., National Grid, Liberty Utilities, Boston ABCD, Pine Tree Legal Assistance, and Pacific Gas & Electric). Although utilities could lose money from AMPs (because they never receive the debt they forgive), as a whole, they can also benefit, because fewer customers have outstanding debt (decreasing billing and collection costs). In turn, this can benefit other customers. In fact, in jurisdictions with more established AMPs, AMPs only add about 1% to ratepayer bills, and these costs are mitigated by the benefits from on-time payments described above (Utility Dive). Furthermore, programs like the Low Income Home Energy Assistance Program (LIHEAP) can provide supporting funds.

Payment assistance funds differ from AMPs in that they encourage customers to donate money to help pay off the utility debt of others. These programs usually function as an add-on to collection, where utilities ask customers if they want to donate to help struggling customers pay off their electricity bills (Energy Outreach Colorado, Fort Collins Government).

Although these two examples showcase utility experience with arrears management, no one has attempted this model with solar, so determining how utilities can use solar "revenues" to retire arrears remains open for discussion. At the simplest level, it would involve taking the utility savings from solar and using them to retire arrears.

Community solar represents an interesting opportunity to complement this model while also conveying some ownership benefits. A number of states have implemented community solar projects, and four of these states (California, Oregon, Colorado, and New York) mandate low-income participation in community solar projects (National Renewable Energy Laboratory). In Colorado, for example, the Colorado Energy Office (CEO) launched the Low-Income Community Solar Demonstration Project in 2015. Participants in this project paid the retail rate for electricity, but also received bill credits for the electricity "sold" to the utility, which partially offset the retail rate and led to savings as well as solar project ownership (CEO). Although a retiring arrears model has not yet been applied with community solar, it represents a potential opportunity for LMI households. Under this model, these households could benefit from community solar bill credits paying off their utility debts, with the added benefit of ownership within a community solar project.

FFCA Rubric

The National Renewable Energy Laboratory (NREL) designed an FFCA evaluation rubric composed of four high-level metrics—locational flexibility, financial flexibility and stability, attractiveness, and impact—with fifteen sub-metrics. Stakeholders can evaluate FFCA concepts by rating the sub-metrics, which have maximum scores of 5 or 10, depending on the sub-metric's level of importance. Total scores have a maximum value of 100. These scores are subjective and depend on individual FFCA program design; however, they provide a general framework for judging the merit of a program. Below, the authors rate the Solar Revenues To Retire Arrears concept.

Portable

●●●●●●●●●● (1/10)

Weak portability for individual participants, but some flexibility in determining who benefits; shared ownership can increase portability, but only within the same utility service territory

Universal

●●●●●●●●●● (10/10)

Utilities can likely apply this model anywhere, though some regulatory approval is required and may depend on solar ownership (utility, third-party power purchase agreement community) and local solar policy

Applicable

●●●●● (5/5)

No limits on applicability

Transferable

●●●●●●●●●● (5/10)

Utilities can transfer benefits, but individuals cannot

Investable

●●●●● (0.5/5)

Individuals are not making investments in this model; however, low-income carve-outs for community solar could create income streams

Accessible

●●●●● (5/5)

Could range from 2.5–5; nationally, most arrears are owed by LMI households, leading to strong

accessibility, but there may be some jurisdictions with varying demographics

Secure/Transparent

●●●●● (5/5)

Utility collection processes are usually secure

Equitable/Desirable

●●●●●●●●●● (5/10)

Provides some consumer protections and helps customers when they go into debt, but doesn't prevent customers from going into debt; however, the community solar approach can create ongoing cash streams, increasing equity

Strengthens Community

●●●●● (0.5/5)

Does not engage local communities and is very transactional in nature; the community solar approach may have more engagement

Leverages Partners

●●●●● (0.5/5)

Does not work with organizations relevant to LMI households

Mitigates Risk

●●●●● (2.5/5)

Reduces risk in general for customers and for the utility (through debt relief and better utility operating performance), but doesn't reduce risk for solar investments specifically (unless applied with a community solar model)

Provides Financial Benefits to LMI

●●●●●●●●●● (10/10)

Could range from 5–10; LMI households benefit most because they are more likely to have arrears, but some jurisdictions may have varying demographics, and the extent to which LMI households benefit also depends on what method and how much of the solar revenue stream the utility decides to use to retire arrears

Provides Non-Energy Benefits

●●●●● (0.5/5)

There are no non-energy benefits inherent to retiring arrears, but some benefits could be obtained based on the structure of the program (ownership/financial literacy, displacing fossil fuels)

Impacts Grid Flexibility/Stability

●●●●● (0.5/5)

Does not enable associated grid benefits

Scalable

●●●●● (5/5)

Easy to scale, as any utility with arrears can apply this model

Discussion

There are several benefits to utilizing the retirement of arrears as a vehicle for directing solar benefits to LMI households: the model can be applied anywhere that utilities have arrears; LMI households can disproportionately benefit, given that they are much more likely to owe payments on utility bills; this model would be easy to scale and apply and scale across the country.

Conversely, the model is not ideal for raising capital and does not necessarily confer long-term benefits to LMI households. Given the relatively straightforward structure of this model and the presence of existing frameworks, this model will likely have low levels of complexity and require almost no legal or regulatory changes. However, there are some key questions which must be answered when considering implementation and design of the model. First, how will the utility procure the solar assets? Second, what mechanism will the utility use to retire arrears with solar revenues? Will it directly utilize solar revenues, or will it try to monetize savings from solar installations to retire arrears (such as through community solar)? Third, what happens if the customer moves before completion of the program? How much debt should remain outstanding? Finally, who specifically in the utility's service will benefit from retiring arrears? Answering these questions will allow utilities to better understand the potential impacts of implementing this model. For example, they could utilize NREL's Low-Income Energy Affordability Data (LEAD) tool, which shows the income brackets and energy burden of residents down to the census level ([LEAD](#)).

Utilities are the only necessary partners for this model because they can make their own investments in solar assets and retire arrears within their own collection systems. However, third-party solar developers and organizations, like community solar partners, which support those behind in utility payments, could provide supplementary support to improve implementation of this model.

Next Steps

Overall, this model provides a relatively simple way to serve LMI customers by utilizing solar to pay off their debts and help them get them back on their feet with no qualifications or credit check required. This model can also help utilities and other customers, because more on-time payments will lead to decreased utility operations costs. The next steps include conducting research on how solar revenues (or savings or possibly another mechanism) can be used to retire arrears. As such, it may make sense to bring in utility partners for consultation.

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Full Overview of FFCA Products

www.nrel.gov/solar/market-research-analysis/flexible-financial-credit-agreements.html

