

Prepared testimony of Kiran Bhatraju, Founder and CEO, Arcadia
Subcommittee on Energy of the Committee on Energy and Commerce

“Generating Equity: Deploying a Just and Clean Energy Future.”

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My name is Kiran Bhatraju, I'm an entrepreneur and environmentalist from eastern Kentucky coal country. I'm the Founder and CEO of Arcadia, the nation's largest community solar platform with customers in all 50 states. Previously, I founded another venture-backed climate tech company, American Efficient, that aggregated energy efficiency in wholesale power markets. I started my career on Capitol Hill as a legislative aide to Congressman John Yarmuth (KY-3) and I'm thankful for the opportunity to share my thoughts with Congress about what I see as the most important segment of the energy transition that will help us decarbonize, create jobs, and promote equity.

Arcadia gives customers a simple, easy, and affordable way to choose renewable energy, connecting their homes and community to the highest standards of clean energy. Founded in 2014, Arcadia's software technology connects with utilities in every state, manages 4.5 terawatt-hours of residential energy demand, and is the largest manager of residential community solar subscribers in the US. Learn more about how we are achieving our vision of a 100% renewable energy future at www.arcadia.com.

We are bringing solar to the 2/3 of Americans for whom rooftop solar is not an option

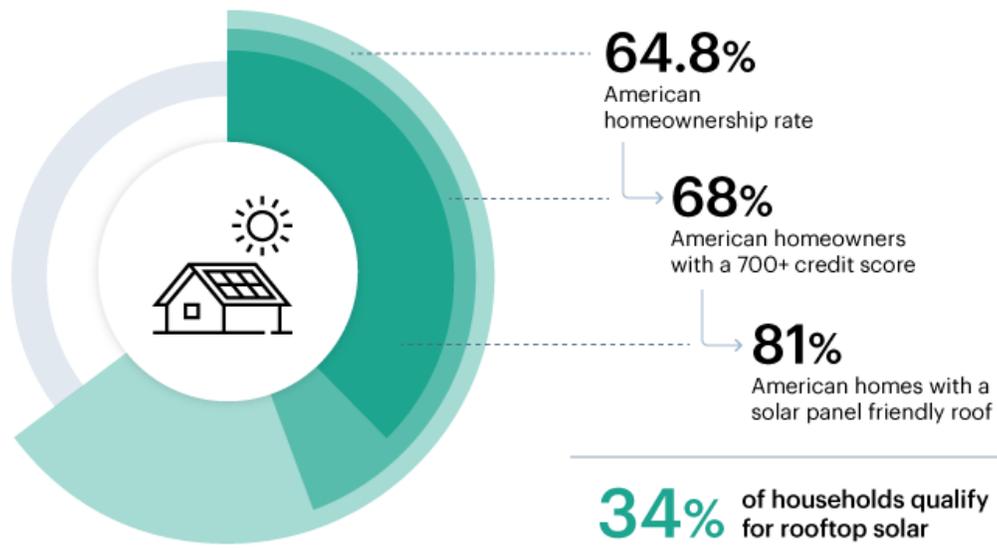
Arcadia is the largest direct-to-consumer provider of community solar in the country. Community solar is the way for anyone - no matter their income, their credit score, their housing type, or whether they rent or own - to directly benefit from solar energy. By joining a community solar project, consumers save money on their energy bills and know they are directly contributing to more solar power on their local energy grid.

Without community solar, most people would not otherwise be able to directly participate in solar energy, which usually requires an investment or other financial commitment to put solar panels on their rooftop. In fact our research at Arcadia shows that rooftop solar is a reasonable choice for only 1/3 of American families.

There are three big reasons why a household would not be a good candidate for rooftop solar. First, the family has to own their house. Rooftop solar is a large capital investment that no renter should realistically make. Second, the family has to be able to either pay for the solar system upfront, which costs tens of thousands of dollars, or finance the system, which often requires a credit score above 700. Finally, the actual roof itself can be an impediment. The ideal roof has to get sufficient sunlight and be strong enough to support solar panels.

These barriers are real. As shown in the graphic below, 64.8% of Americans own their home, 68% of those homeowners have a credit score above 700, and 81% of single-family homes have a solar-friendly roof. Adding that all together, just 34% of households qualify for rooftop solar.¹

¹ <https://blog.arcadia.com/why-community-solar-solves-solar-s-biggest-problem/>



This is particularly concerning because the criteria that makes someone a good candidate for rooftop solar are not evenly distributed across the population. Homeownership and high credit score requirements disproportionately exclude low-income families, women-led households, people of color, and people without college degrees. Community solar is the best way - and in many cases the only way - to bring the benefits of solar to these Americans.

Community solar exists today in leading states

State legislatures across the country recognize the value of community solar. Arcadia is offering community solar to our customers in eight states: Maine, Massachusetts, Rhode Island, New York, Maryland, Illinois, Colorado, and the District of Columbia. These states have embraced community solar to give everyone access to clean energy and have active community solar programs with robust participation from market-driven companies like Arcadia. Most recently, New Mexico and Virginia's legislatures have passed laws and the executive branches in those states are writing rules for how the programs will operate. A handful of other states, like Pennsylvania, are actively considering community solar today.

Each of these states' community solar programs are unique, but they all have common elements. First, electricity consumers are able to subscribe to a solar project that is not located on their property. Second, the community solar project has multiple subscribers - I have seen projects with anywhere from a half dozen subscribers to more than a thousand - and the project's output is allocated across the subscribers. Typically, subscribers who use more energy have larger allocations. Third, as the project generates power, the power flows to the local utility grid. In exchange for receiving power from the project, the local utility creates bill credits. Fourth, the utility applies those bill credits to the subscribers' bills based on their allocation, so that subscribers with larger allocations receive more credits, and vice versa. Finally, in exchange for receiving bill credits, the subscribers owe a fee to the community solar project. In

our programs, customers receive a 5 to 10 percent guaranteed savings for as long as they are signed up.

One point I want to emphasize here is that the revenue for a community solar project - the actual cash flow to the project - comes from the subscribers, and the size of the subscription fee is determined by a contract between the project and the subscriber. The utility's role is to give bill credits to subscribers, not to buy the power. Without subscribers, community solar projects don't exist.

Arcadia's role in community solar is to find subscribers and manage everything related to the subscribers' experience. We market community solar to potential customers, enroll subscribers in projects, determine the appropriate allocation size for each subscriber, communicate allocation sizes to the utility, check that the utility has accurately applied credits to subscribers' bills, collect subscription fees from subscribers, and transmit those fees to the community solar project. We also operate a customer experience team to respond to any questions from subscribers and make sure they understand the impact their community solar subscription has on their energy bills and their community's power system.

As you can see, Arcadia is central to the community solar projects that we help manage. We now perform these functions for 430 megawatts worth of community solar, spread across 185 projects in eight states. Ultimately, these projects will serve about 65,000 subscribers. These projects have saved customers money, made the grid greener, and created hundreds of local jobs.

These projects are in different communities across the country, many of which may be important to members of this committee. We manage the first community solar project in New York to incorporate battery storage, which is located in Yorktown Heights.² We have a project in Kankakee County, Illinois, that is reducing power bills for 544 customers across the Chicagoland area. We manage a project in Logan County, Colorado, where the proceeds from the leased land benefit the state School Trust, helping children across Colorado enrich their education.

Clearly, community solar is thriving in some markets. These states are relying on the private sector to drive innovation, which is enabled by supportive policy environments. The remainder of this testimony will describe the customer-friendly innovations that the private sector is leading and how Congress can unlock more community solar across the country.

Arcadia's is leading the way towards the most customer-friendly community solar offering

Our scale has put Arcadia in a unique position to shape the industry, and we have used that position to create what I believe is the best customer-facing product in the energy industry.

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<https://www.governor.ny.gov/news/during-climate-week-governor-cuomo-announces-first-completed-community-solar-plus-energy>

Arcadia has turned community solar into a way for all families to save money on their energy bills with zero long-term commitment and zero risk.

I can explain more about how each of these innovations work.

First, our customers are guaranteed to save money with community solar. As described above, the financial experience for subscribers is to receive utility bill credits and pay subscription fees. When the subscription fees are lower than the bill credits, the subscriber's total energy spending goes down. Arcadia's innovation is to guarantee that the bill credits will *always* be larger than the subscription fees. We do this by indexing the subscription fee to the utility-provided bill credits, at a specific discount rate. For example, the most common discount rate on projects we manage is ten percent. In that case, if a customer receives bill credits worth \$100 in one month, then their subscription fee is \$90. Similarly, if generation from the project is lower the next month and the customer only receives \$50 in bill credits, then their subscription fees will be \$45.

Second, community solar is zero-risk for our customers because they are free to leave the project at any time with no financial penalties. The most common reason someone leaves a community solar project is because they move and are no longer eligible to subscribe to the same project. This is quite common, with ten percent of families moving each year, and it's even more common with renters, who move almost twice as often, or once every five years on average.³ Arcadia believes it would be unfair to penalize those families and add a community solar penalty on top of their moving expenses. Our customers never sign contracts that include early exit penalties.

Arcadia goes one step further and makes it simple for a customer who moves homes. Indeed, our customers can retain their Arcadia membership when they move, and we actively search for a new community solar project for them when they move, as long as they move to a place where community solar is available.

Finally, we make community solar truly accessible by opening it up to everyone, no matter their credit score. Our data show that payment reliability is high for utility bills and a credit check is an unnecessary burden to place on consumers. Rather than try to estimate if someone is likely to pay their fees, we have decided to open community solar to everyone who wants to participate. Of course, if someone stops paying their subscription fees, they will lose their subscription, but there are no other penalties.

At the same time that Arcadia made these innovations in the customer experience, we had to enable similar innovations with investors. As you know, all things being equal, investors prefer lower risk. We have worked with community solar investors to help them understand that these are strong investments despite the customer-friendly terms. Arcadia is managing 430 MW of community solar projects, representing over a billion dollars of investment, and we have

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https://www.urban.org/sites/default/files/publication/98286/family_residential_instability_what_can_states_and_localities_do_1.pdf

secured investor approval across all of this development to accept customers of all backgrounds, at all income levels. For example, Summit Ridge Energy, a large renewable energy project developer, has invested half a billion dollars in projects managed by Arcadia. Similarly, Aspen Power Partners, an infrastructure investment firm, has invested \$180 million in projects managed by Arcadia.

With third-party community solar, the competitive market bears any risks, not the customer

The experience from states with the most active community solar markets is that private companies and the competitive marketplace are the best ways to manage risk in the programs.

Most important, the above description of Arcadia's customer-friendly terms shows that market competition leads to the transfer of risk away from consumers and toward companies that have sophisticated risk management techniques available to them.

Consider the guaranteed savings model, which is innovative not just because it guarantees that the customer will always save money, but also because it shifts all of the risk of a project onto the project developer. The two big risks for a subscriber in a community solar project would be that the project doesn't generate as much power as expected or that the value of the credits changes over time. With the indexed price model that Arcadia uses, the subscriber is protected from both of those risks: they save money no matter how much power the project generates and no matter how big the bill credits are.

Not charging exit fees is another example of transferring risk from the customer to someone who's in a better position to manage the risk. Arcadia has a responsibility to make sure that the community solar project is fully subscribed. When one subscriber moves, we find a new subscriber to take their place on the project.

Yet another example is that by not checking credit scores, the risk of nonpayment has been moved from the subscriber to the project.

Our observation is that companies that are more willing to bear risk offer better customer terms than other companies, including incumbent utilities. There are some utilities that offer programs they call "community solar". Some of these programs are structured as bill credits, similar to the mechanics described above, while others are premium products where customers pay more for the right to say they're contributing to solar power. We do not view these premium offerings as true "community solar". Of the programs that offer bill credits, we have yet to see a utility-run community solar program that offers guaranteed savings from day one with no long-term commitment. Utilities are simply not able to manage this risk, which is why customers are best served by the private market that is completely exposed to the forces of competition.

Community solar is particularly valuable to low-income households

Arcadia also has experience serving low- and moderate-income (LMI) households. First and foremost, our customer-friendly product offering was designed to make community solar a good fit for everyone, particularly LMI households who are more likely to face a high energy cost burden, move more frequently, and have lower credit scores. There is no doubt that a LMI household struggling to make ends meet would be better off if they subscribed to a community solar project managed by Arcadia.

I'm particularly excited about some of the successes Arcadia has had in reaching out directly to LMI customers. For example, we are working with a housing authority in New York, affordable housing properties in Maryland and Rhode Island, and signing up low- to moderate-income customers directly across all our active community solar markets.

One of the challenges we've observed with LMI customers is that many states have a requirement that a portion of projects be dedicated to LMI subscribers, but the process for verifying their income status is overly intrusive. Arcadia does not want to see someone's tax returns or paystubs, and no reasonable customer wants to share that personal information with us. The result is that LMI verification has in some cases actually become a barrier to LMI enrollment. Our strong recommendation is that states should adopt a goal of making it no more burdensome for an LMI customer to subscribe to a community solar project than a market rate customer. Practically speaking, this means that LMI verification should be non-intrusive. The two best examples for how to do this are to base eligibility on information available on the customer's utility bill (for example, the customer is automatically verified as LMI if they are on a special rate for people needing assistance) or a customer's geographic location (for example, the customer is automatically verified as LMI if they live in a census tract where the median household is LMI).

Community solar has many beneficiaries, including rural landowners

State legislators don't create community solar programs solely because it benefits subscribers, even if those subscribers are low-income. State legislators create community solar programs because of the large, diverse set of stakeholders who benefit.

The Pennsylvania Farm Bureau is one of two organizations leading the Pennsylvania Community Solar Economic Alliance, the leading voice trying to pass a community solar law in the state.⁴ They're committed to the effort because they see solar energy as a lifeline to struggling farms. For example, dairy farmers are struggling with low milk prices and may have pasture land that isn't valuable for other uses. They can earn as much as \$1000 per acre each year by leasing part of their land to a community solar project.⁵ This same dynamic exists in other states, where rural landowners are champions of community solar as an economic development tool.

⁴ <https://www.pa4communitysolar.com/about-us>

⁵ <https://strategicsolargroup.com/what-is-the-average-solar-farm-lease-rate/>

Community solar projects are frequently located in economically distressed areas. For example, of the 185 projects that Arcadia manages, 22% of them are located in Qualified Opportunity Zones. That represents hundreds of millions of dollars of investment in the areas that need it most.

Community solar projects are built and maintained by skilled workers. A 2020 study from Penn State, for example, found that deploying community solar across the state would create more than 11,000 jobs, including almost 6,000 jobs in construction, interconnection, and advertising work. These same projects would employ hundreds of people on an ongoing basis for operations, maintenance, and related work.⁶

Another benefit of more economic development is that the community solar project owner - most commonly a for-profit company - will pay taxes on their new investment. This can be quite large. In one example in Oregon's Jefferson County, unused agricultural land was paying \$382.19 per year in property taxes. If the same land hosted a solar project, the county administrator said the project owner would pay \$441,000 per year in taxes.⁷ Considering that the average teacher in Oregon makes \$61,900 per year, that solar farm would fund more than six full-time teacher salaries.⁸

Finally, community solar contributes to grid resilience and helps reduce large grid expansions. These projects are virtually always connected to the distribution grid, which has multiple benefits. First, connecting at the distribution level means that no new transmission is needed, which is particularly important given the added complexity of siting new transmission lines. Second, because the projects are connected to the local grid, they're one of the only sources of power that exists if there are outages on the transmission grid. Recent experiences in California and Texas make clear that the risk of transmission outages is very real. Finally, a recent study found that building a power system with more distributed energy resources like community solar would be \$473 billion cheaper than the status quo through 2050.⁹

Corporate America sees the value in community solar

We increasingly see corporate interest in community solar, particularly as a benefit for employees. One of the impacts of the pandemic is that employees' utility bills have gone up while working from home instead of the office. A number of companies have asked Arcadia to help manage this cost, and community solar is the right tool.

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https://aese.psu.edu/research/centers/cecd/publications/economic-impact/economic-impact-of-community-solar_sept-2020_psu-cecd.pdf

⁷ <https://pamplinmedia.com/msp/129-news/503127-403030-more-solar-farms-sprout-in-county>

⁸

https://www.oregonlive.com/education/2018/04/oregon_teacher_salaries_averag.html#:~:text=In%202016%2D17%2C%20the%20average,pay%20among%20the%2050%20states.

⁹ <https://www.localsolarforall.org/roadmap>

Some examples of companies we're partnering with include Biogen (a leading biotech firm with 5,000 US-based employees), Just Salad (a New York-based fast casual restaurant chain with 50 employees), and McDonald's (the global restaurant chain with 200,000 US corporate employees). In each of these cases, the company's employees are given the opportunity to become an Arcadia customer. If community solar exists in the state where the employee lives, they are automatically subscribed to a project and receive all of the benefits of community solar, including bill savings.

Federal leadership will unlock the opportunity for more families to participate in community solar

The case for community solar is clear. Today, a handful of states are leading the way forward. Maine, New York, Minnesota, Colorado, Massachusetts, Maryland, Illinois, New Jersey, Rhode Island and the District of Columbia have active community solar programs. These states are bipartisan. Some have fully regulated utility sectors, while others are deregulated. They are geographically diverse. They show that community solar can work in any state.

The biggest challenge the industry faces is that the market opportunity is constrained by state action. Congressional leadership can unlock market growth. In the last Congress, the House passed language in the omnibus energy package that would require every state utility regulator to consider implementing a community solar program. This language was originally introduced by then-Representative Lujan as the Community Solar Consumer Choice Act, HR 5968, in the 116th Congress. In this Congress, the language is included in the CLEAN Future Act as Section 225. We anticipate the language will also be introduced as a standalone bill.

Congress has used this tool before to advance state-level policies across the country. In the Energy Policy Act, Congress required state regulators to consider net metering, fuel diversity, and fossil fuel generation efficiency. Following passage of the 2005 law, the Department of Energy issued a guidebook for how states should "consider" implementing these policies. Crucially, the legislative language and DOE's guidelines make it very clear that a state's consideration does not mean that a state has to adopt any policy.¹⁰ For example, many states have net metering today, but some states decided not to adopt this policy.

The community solar industry has significant experience with sharing best practices across states. While beyond the scope of this testimony, program details determine whether or not community solar truly is accessible to everyone. I would encourage state regulators or anyone who wants to learn more about best practices to read the model state legislation and other resources from the Coalition for Community Solar Access.¹¹

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<https://www.energy.gov/sites/default/files/Manual%20for%20Implementation%20of%20PURPA%20Standards%20in%20EPA%202005%20%28March%202006%29.pdf>

¹¹ <http://www.communitysolaraccess.org/resources/>

Congressman Rush has also introduced a bill that could help advance community solar. The Energy Equity Act of 2021, HR 1375, would create an Office of Energy Equity within the Department of Energy. Section 218(b)(2) of the bill directs the office to advance programs that “reduce or stabilize energy costs within underserved or disadvantaged communities”, which clearly includes community solar. As part of this directive, this office should work with states to develop best practices to facilitate low-income participation in community solar, along the lines of the feedback I’ve given above. This office could also evaluate state responses to the Community Solar Consumer Choice Act to ensure that states are fully considering the equity benefits of community solar.

This simple action - requiring state regulators to consider community solar - would jump-start activity in all of the states that haven’t acted to date. I believe that Arcadia can make the case that every state should have community solar should exist. All we need is the forum to make that case, and passing this bill would create that forum.

Conclusion

Arcadia was founded with the mission of making clean energy accessible to everyone. Seven years later, we’re using community solar to do just that. We are unlocking the benefits of solar for low-income families, renters, people with older or shaded roofs, apartment-dwellers, families that move frequently, and more, all while leading to economic development in the rural areas that host the solar projects. This is the best energy product available to consumers today.

The only thing standing in our way of delivering community solar nationwide is that not every state has enabled it. It’s past time to fix that. Leading states have shown that community solar can work everywhere. The next step is for Congress to encourage states to learn from each other.

Thank you for the opportunity to tell you about community solar, Arcadia, and my passion for bringing clean energy to every American family.