

A Black Community's Toxic Legacy

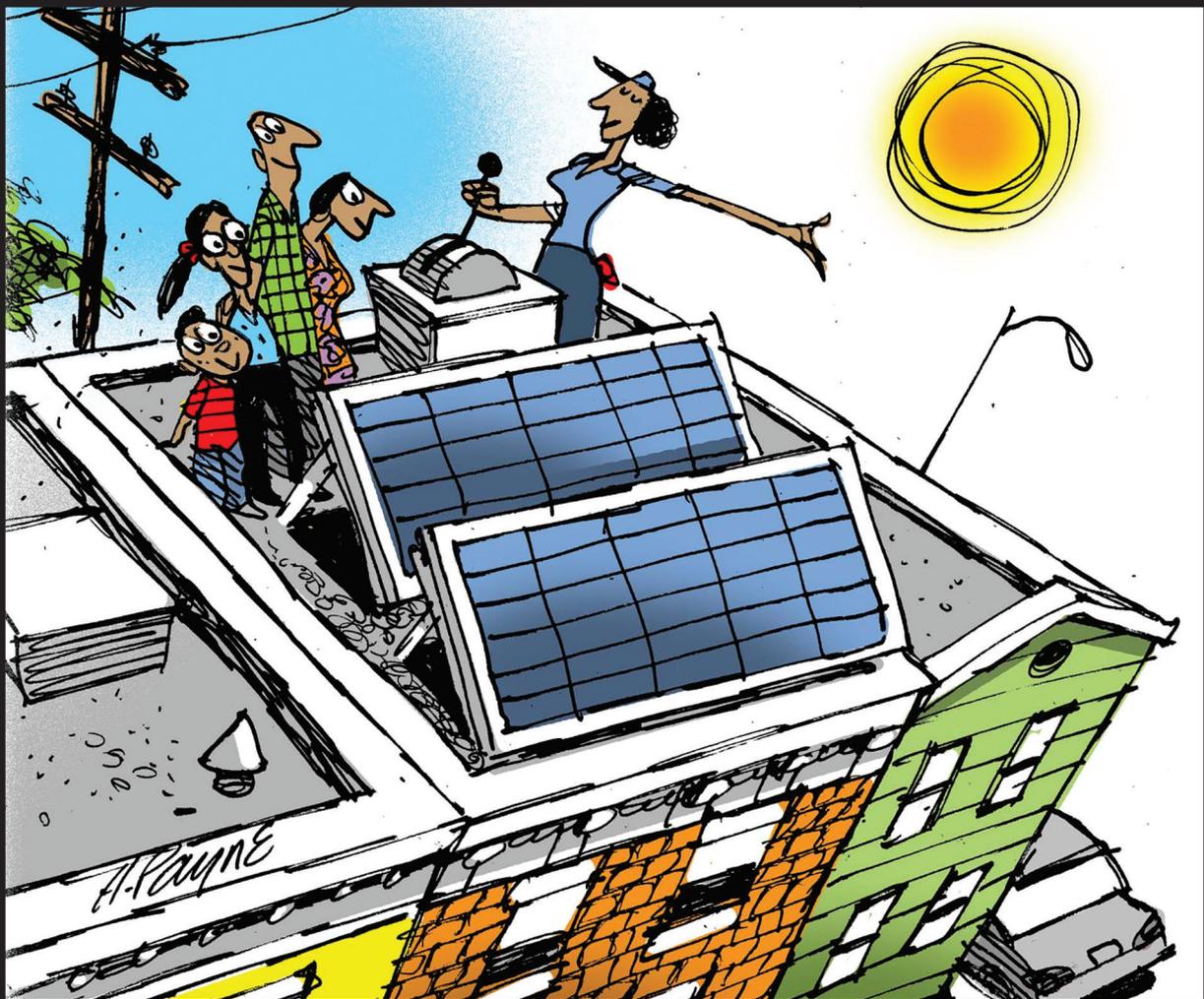
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Building Solar Justice

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Building Solar Justice

“We have this abundant renewable resource at our fingertips. How can we make it something that drives economic development in communities that have been excluded from the clean energy sector?”



Philip Warburg is a senior fellow at Boston University’s Institute for Sustainable Energy. He is the author of *Harness the Sun: America’s Quest for a Solar-Powered Future* and numerous articles on solar energy. An attorney at ELI from 1989 to 1997, he led the Institute’s Central and Eastern European law reform efforts and then directed its Middle East Program.

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E ARE living in a time of rage about forgotten and neglected segments of American society. That rage has been directed at police brutality targeting African Americans.

It has focused attention on the higher Covid-19 death rates and slower access to vaccination among people of color. And it has surfaced a panoply of economic injustices that stand in the way of lower-income Americans meeting basic needs with the limited resources at their disposal. Unequal access to clean, affordable energy is one of those injustices.

On the campaign trail and now in the White House, President Biden has signaled his determination to make environmental justice a centerpiece of building a more robust, sustainable energy economy. Breaking through the barriers that have slowed the adoption of solar power by low-income households and communities of color needs to be part of that agenda.

A key messenger of the Biden administration's commitment to greater energy equality is Shalanda H. Baker, recently appointed deputy director for energy justice at the Department of Energy. A law professor on leave from Northeastern University, Baker recently published a manifesto called "Revolutionary Power: An Activist's Guide to the Energy Transition." In it, she decries "climate change fundamentalism," a tendency among mainstream — predominantly white — environmental leaders to focus on maximizing the shift to non-carbon fuels while ignoring the deep inequities embedded in many proposed reforms. Revolutionary power, as she sees it, is "an approach that centers the voices, hopes, and dreams of the poor, people of color, Indigenous people, and those marginalized by the old energy system in the redesign of the new system."

One of the more powerful, though lopsided, policy reforms of the solar era is the federal Investment Tax Credit. Since the ITC was adopted in 2006, the solar industry has grown by an average of 52 percent per year, in no small part due to the economic boost that the tax credit has catalyzed. While the American Recovery and Reinvestment Act of 2009

allowed the tax credit — then set at 30 percent — to be converted to a grant for certain businesses, Congress stopped funding the grants program in 2011. Since then, the ITC has been the exclusive domain of homeowners and businesses with sufficient tax liability to take advantage of the credit. Non-profit organizations and the low-income communities they serve have been outside that loop of federal largess.

While the federal government has done little to strengthen solar access by low-income households and minority populations, the spirit of inclusion has found its voice elsewhere — in states and cities large and small, in community organizations seeking energy justice, and in civic-minded entrepreneurs using a variety of policy and financing tools to give racially and ethnically diverse, low-income Americans a stake in our clean energy future.

California was an early pioneer in breaking the income barrier for solar ownership. In 2006, the California Assembly ordered that at least 10 percent of the \$2.2 billion ratepayer-funded California Solar Initiative be dedicated to bringing the benefits of solar energy to low-income households. Three years later, the Single-Family Affordable Solar Homes (SASH) program was launched, with a budget of \$108 million to be spent on up-front support for solar arrays

installed on homes with household earnings no higher than 80 percent of the area median income. Small, one-kilowatt photovoltaic, or PV, arrays were fully subsidized under SASH for the lowest-income households; others received partial support for higher-capacity systems. Foundation grants and donated equipment helped close the funding gap for these larger installations.

GRID Alternatives, the non-profit hired to administer SASH, has done much more than facilitate the adoption of solar power by low-income households. Though it relies heavily on short-term volunteers to assist with PV installations, it has also made workforce development a priority, partnering with job training programs that work with re-entry populations and at-risk young adults. Job trainees have logged in nearly a quarter of the 84,000 workdays at SASH installation sites.

By 2015, GRID Alternatives had installed 4,500

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PV arrays. That same year the California Public Utilities Commission allocated another \$52 million to SASH and authorized a form of third-party ownership that stretches the available funds to a greater number of households. Under this model, homeowners do not own the PV on their rooftops, but they receive bill credit for all the solar electricity. Sunrun, a leading solar installer, is the third-party owner of these systems. Along with being compensated by SASH for the free solar electricity that customers receive, Sunrun earns Solar Renewable Energy Certificates attributable to the solar power. As a for-profit company, it also qualifies for the federal Investment Tax Credit.

As of July 2020, cumulative SASH installations had reached 9,200 low-income households — a doubling of the program’s impact since 2015. But as most of the solar arrays installed by SASH since 2015 are owned by Sunrun, this success has come at a price. To solar advocates who see ownership as fundamental to advancing energy justice, this new brand of SASH participation falls short of the imperative to build new wealth in low-income communities, along with easing household energy burdens.

Lower rates of solar adoption in low-to-moderate income communities have been well documented in recent years. Wide disparities in solar deployment have also been found between predominantly white communities and those with Black and Hispanic majorities, even after correcting for lower rates of home ownership in the latter. Further afflicting communities of color is the higher level of exposure to environmental harms caused by polluting factories, abandoned brownfield sites, adjacent highways, and deteriorated housing with hazards such as lead, mold, and asbestos.

To narrow these racial, ethnic and economic gaps, a number of states have begun to focus their solar outreach efforts on underserved areas variously defined as environmental justice or, in California’s case, “disadvantaged” communities. In 2018, the California Public Utilities Commission adopted a slate of new programs to provide these communities with easier access to renewable energy. One of them is the Disadvantaged Communities–Single-family Solar Homes program, known as DAC-

SASH. It too is run by GRID Alternatives using a data resource called CalEnviroScreen to locate census tracts bearing the state’s heaviest environmental burdens that are also afflicted by poverty, high rates of unemployment, low educational attainment, and linguistic isolation.

Operating within these census tracts, GRID Alternatives has faced costly hurdles in identifying low-income homeowners who are ready to make the leap to photovoltaics. “For many communities of color in California, solar is not number one on people’s wish list,” says Danny Hom, a member of GRID Alternatives’ strategy team. “It is regarded as something for the richer and whiter communities.”

Financially strapped homeowners are wary of being preyed upon by purveyors of home improvement products and services that sound better than they may turn out to be. Moreover, at a time when the Covid-19 pandemic has taken a particularly heavy toll on household budgets, many recoil from the prospect of spending money to repair an out-moded electrical system or an aging roof before solar can be safely installed.

While 35 percent of low-income Californians own their homes, the rest are renters who must rely on their landlords to tap solar on their properties. Even if landlords do so, there is no guarantee that the benefits will trickle down to tenants. The Solar on Multifamily Affordable Housing program seeks to address this problem, focusing, like DAC-SASH, on disadvantaged communities. Funded by up to \$100 million per year in greenhouse gas allowance payments from the state’s investor-owned utilities, SOMAH offers up-front incentives to multi-family building owners who install photovoltaic arrays, provided that tenants receive at least 51 percent of the generated power as credits on their electric bills.

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— Danny Hom, GRID Alternatives strategist

A CROSS THE continent, the District of Columbia has made its own strides toward solar democracy. In 2017, it launched a Solar for All program that set a target of supplying the benefits of solar power to 100,000 low-income households

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Communities Tackle Energy Injustice

EVERY day, we use the sun’s energy to power our lives — in this way, the sun is every human’s birthright. So when we seek energy justice we do so because this essential resource should be shared among all persons. I formed the nonprofit New Partners Community Solar with my partner at the law firm Nixon Peabody, Jeff Lesk, to address energy injustice. Our mission is to find new ways to bring solar energy access equitably to entire communities.

We discovered that a powerful way to achieve these goals is through a new law in the District of Columbia allowing for “community solar.” It in turn is based on a program in Colorado that allows homeowners to share energy in their neighborhoods. D.C.’s law and our program utilizing it converts the western state’s program to an urban setting.

Our new model helps large commercial building owners in D.C. deliver the financial benefits of their rooftop solar energy to low-income families across town. By requiring the electric utility to convert the power going into the grid to cash, the money can be distributed to residents through credits on their electric bills.

This leap is a big one — the families sharing the financial benefits of solar do not need to own their own homes; they can be renters or condo owners and still see a financial benefit each month. Instead of restricting the benefits of solar energy only to those individuals and businesses that own property, the solar panels can be placed anywhere in the utility grid and serve all people.

The community also gets the benefit of more renewable energy, which reduces dangerous pollution and fights climate change, and un-



Herb Stevens
Chief Executive Officer
New Partners Community Solar

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used roof space is turned into sites for green jobs that employ people in the local neighborhood.

Although 19 states and D.C. have recognized the benefits of community solar by encouraging its growth through policy and programs, most have not. As a first step to achieve energy justice, all states should enact robust community solar programs with true access for all built into the law.

Each state should also require its utility regulator to remove the electric grid barriers to distributed solar energy production. We have so many places in urban or rural areas that solar could be put — such as office rooftops, churches, schools, and apartments — but putting solar in these new places exposes the deficiencies of an older electricity system, which does not always allow distributed power to feed into the grid. Removing these barriers not only improves infrastructure resilience but also helps provide more equal access to solar in our communities.

States will need to create more balanced incentive programs. Right now, the federal tax credit and the value contained in solar carbon credits are only available to people and businesses that can own solar panels. This shuts out access to

renters and people of low income.

We are not treating the sun’s energy as a basic human right when we make low-income families pay a disproportionate amount for their energy. Energy for a low-income family can be three times the burden compared to a wealthier family in America, when considering the proportion utility bills takes up in their monthly budgets.

States can use different incentives to address this disparity, as well as the lack of access to capital to build or buy solar systems. The District of Columbia, for instance, uses penalty payments each year for utilities that do not meet the renewable energy standard for solar and uses these payments to subsidize a “Solar for All” program.

Years ago, at a seminar, I saw a map of my city that showed dots where all the solar installations were. Then laid over it, they showed the income levels throughout the city. One person in the audience spontaneously shouted out, “It looks like the sun shines only on the rich.” Let us work to change that.

We’d love to hear your ideas and get your support on this important mission. Email our executive director, Sasha Srivastava, at engage@npsolar.org.

by 2032. Under the terms of this program, income-qualified households can expect at least a 50 percent reduction in their pre-solar electric bills. Funding is generated by alternative compliance payments made by the local utility, PEPCO, to comply with one of the nation's most ambitious renewable portfolio standards, which requires that 50 percent of the District's retail electricity come from qualifying renewable sources by 2032.

In Solar for All's pilot phase, the D.C. Department of Energy and Environment made a number of grants to field-test a range of approaches to expanding low-income solar access. Single-family homes have been one target, with cost-free PV installations being offered to participating households.

Solar United Neighbors, a local non-profit, was one of two organizations focused on single-family homes during the pilot phase. SUN's recruitment efforts demanded an intensive commitment of staff resources to community meetings and follow-up with potentially interested homeowners.

"For eighteen months we were out in the community every week — several times a week sometimes. We went to civic association meetings, Advisory Neighborhood Commission meetings, all the way down to districts inside of every ward," recalls Yesenia Rivera, SUN's director of energy equity and inclusion. Senior citizens were particularly interested in Solar for All's offering. "It's an easy way for seniors to age in place and reduce some of the burden because they're on a fixed income. Everything else keeps going up, but this lets you control your electric bill."

THERE were obstacles, however, to bringing single-family households in from the cold. Before solar could be effectively deployed, funds were often needed to make electrical upgrades, roof repairs, and other structural improvements. SUN had limited success in securing funds from home energy conservation programs such as the federally supported Weatherization Assistance Program. In all, SUN landed solar arrays for 73 single-family homes — a small number, but Rivera says that it

is "a pathway to prosperity" for the participating families.

Beyond the painstaking work involved in placing solar on single-family homes, Solar for All faces a numerical challenge as it works toward the District's 100,000-solar-household goal: fewer than 92,000 households in the District pay their own electric bills; the rest live in master-metered public housing. It was clear that the program's implementers would have to come up with alternative ways to pass along solar benefits to these households.

The National Housing Trust, a nationwide non-profit with a strong D.C. presence, took up this challenge. In the first two years of Solar for All,

NHT installed solar on 14 of the housing projects it owns and operates in the District, serving 761 low-income households. "The idea is that the program should be cost-neutral to the property owner," reports Andrew Martin, asset manager at NHT. "Any savings realized in lower energy bills go toward providing direct services to residents or upgrades to common spaces at the property." These have included community meals and groceries for residents, rent relief to families affected by Covid-19, free Metro cards and other means

of transportation, improved security, fitness classes, and intergenerational art classes.

Free subscriptions to community solar projects are another vehicle being used to reach low-income D.C. residents through Solar for All. Unlike Illinois and Minnesota, where a number of shared solar facilities have been built on open farmland many miles from the subscribers they serve, there is little open land that can be deployed for solar in the District of Columbia. Instead, churches and commercial buildings are typical hosts of community solar projects.

One of these projects draws solar power from a 43-kilowatt rooftop array and a 125-kilowatt solar canopy at the Dupont Park Seventh Day Adventist Church in Southeast D.C.'s Ward 7 neighborhood. The project's developer, a non-profit called Groundswell, channels 100 percent of the electricity from these installations to 48 low-income families, using funds from Solar for All. Savings per family are estimated at \$500 per year — about half the aver-

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— Emily Robichaux, chief financial officer, Groundswell

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Energy Transition an Equity Opportunity

OUR energy system is changing. This transition presents a tremendous opportunity to build in democracy, justice, and equity. Distributed solar energy like rooftop and community solar is uniquely able to repair the harms caused by our current fossil-fuel-dependent model.

A transition to solar, if done correctly, can also create an equitable economic recovery. It can lower the energy burden for low-income families, and it can expand who participates in the emerging renewable-based energy system.

The cost of fossil-fuel-based energy is increasing. These costs fall hardest on low- to moderate-income families. An under-resourced family can spend as much as 30 percent of its income on electricity. The federal government spends billions on energy assistance programs. These programs provide support on a year-to-year basis. Currently, they only serve less than a fifth of the eligible population. Distributed solar provides a more sustainable solution to reducing and controlling energy costs on an ongoing basis. Unfortunately, financial barriers keep too many families from benefiting from solar ownership.

The federal government should increase funding to energy assistance programs to enable the people who most need help with energy bills to invest in solar. Adding support to build solar would also create long-term integrity and solvency for these programs. Both the Department of Health and Human Services' low-income home energy assistance program and the Department of Energy's weatherization assistance program can cover the cost of solar installations. These programs and others can easily be adapted to address the financial barriers keeping families from benefiting from solar.



Yesenia Rivera
 Director of Energy
 Equity and Inclusion
 Solar United Neighbors

“An investment in solar power can help in the economic recovery and lift millions of families in the process”

Cost is not the only barrier to a just transition to solar. Homeownership status is a barrier as well. More than 30 percent of U.S. households are renters. Even when families own their homes, their roofs may not always be suitable for solar. This is especially true if they live in multi-family buildings and condominiums.

Community solar can help all families access the benefits of solar energy, but legal and financial barriers remain. These barriers are high for locally owned community solar projects and projects that serve low- and moderate-income communities.

The federal government can help address this barrier by amending the Public Utilities Regulatory Policies Act. It should require state-regulated utilities and non-regulated electric utilities to develop equitable community solar programs. The Department of Energy should also create a new program to provide loans and loan guarantees for equitable community solar projects.

By addressing the policy and financial barriers to community solar, we can ensure that all households can access the benefits of solar, regardless of homeownership or financial status.

For the transition to solar to be a just and equitable one, we must address all the barriers preventing millions of households from going solar. Cost and homeownership are just two of the barriers keeping us from achieving solar justice. We must also address the lack of information and education surrounding solar energy, the policy barriers suppressing deployment, and the need for access to solar jobs for marginalized communities.

While there are barriers that states can address, the federal government already has the templates and programs that can be modified to dismantle the systemic barriers keeping low- and moderate-income families and environmental justice communities from achieving solar equity. The federal government can significantly reduce the upfront cost to solar transition, streamline solar deployment, and reduce unnecessary barriers.

We must address the harms caused by our current energy system and ensure that marginalized communities and environmental justice communities finally benefit from the transition to clean energy. An investment in solar power can help in the economic recovery and lift millions of families in the process.

age annual household bill for electricity, says Emily Robichaux, Groundswell's chief financial officer. At three of the projects Groundswell has developed in D.C., a fourth-generation, minority-owned local business has taken the lead on construction.

Speaking to the value of siting projects like this in the communities they serve, Robichaux says: "We have this abundant renewable resource at our fingertips. How can we make it something that drives economic development in communities that have been excluded from the clean energy sector?"

Solar for All initially provided full grant funding for community solar projects like those developed by Groundswell, but now these projects receive an incentive per installed watt that falls short of covering costs. Robichaux notes that the feasibility of these projects therefore hinges on third-party financing by for-profit investors with tax liability sufficient to draw on the federal tax credit. The tax credit has already dropped from 30 percent to 26 percent and, by 2024, it will have phased down to 10 percent for commercial solar installations and zero for residential systems. Robichaux argues that it should be maintained at its current level and should be convertible to a grant for non-profit solar developers like Groundswell as well as individuals with little or no taxable income, like many low- and moderate-income households.

A few years into its effort to bring the benefits of solar power to D.C.'s low-income community, Solar for All has begun to move the needle toward its 100,000 household goal. Not surprisingly, progress toward delivering solar to single-family residences has been slow, with only 382 home solar systems installed by the program as of March 2020. Recruiting participants house by house has been painstaking; less than complete funding for installations has dampened homeowner interest in the program; and the difficulty of pairing solar investments with necessary building repairs and energy conservation measures has highlighted the need for stronger inter-program coordination and substantially greater government support.

Much more promising are the projects that have delivered solar benefits at scale. Free subscriptions to community solar projects have reached over 6,000 households while another 5,600 residents

of public housing equipped with solar arrays have benefited from a range of in-kind services offered by their building managers. To meet the 2032 goal, all these approaches will need to step up in the years ahead.

MY HOME state of Massachusetts now gets over 18 percent of its electric power from the sun — a dramatic jump above solar's tepid 2.3 percent share of electricity generation nationwide. The Solar Energy Industries Association estimates that solar power generated in the Bay State is sufficient to meet the needs of more than half a million households. What that number doesn't reveal is how few low-income families benefit from PV on their homes.

"Exploring Equity in Residential Solar," a study conducted by Synapse in 2019, found that there were 13 residential solar installations per 1,000 Massachusetts households with incomes below \$75,000 — the statewide median income. In the \$75,000 to \$240,000 income range, solar installations were nearly three times more common. Disparities in disposable income are clearly a major contributor to this discrepancy, but tax incentives have widened the solar access gap. Both the federal tax credit for renewable

energy investments and a 15 percent state investment tax credit are beyond the reach of most low-to-moderate income households.

The Solar Massachusetts Renewable Target program, adopted in 2018, counters at least some of the forces working against low-income solar. SMART is a tariff-based system that sets a fixed price per kilowatt-hour for the output of new solar installations, extending over 20 years. The tariff more than doubles for small PV arrays serving low-income households. Community solar projects with at least 50 percent low-income subscribers also qualify for a low-income escalator, as do property owners where all the solar electricity is credited to low-income housing.

Ben Underwood is the co-founder and co-CEO of Resonant Energy. Though it is a for-profit company, Resonant is a certified B Corp with a mis-

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— Allan Telio, senior vice president, Nexamp

sion, as Underwood describes it, “to fundamentally change how the profits of the solar industry are distributed and whom they benefit.” Over the past four years, Resonant has installed more than 3.5 megawatts of solar power on affordable housing, individual homes, and houses of worship.

One of Resonant’s recently completed projects is a community solar installation at Temple Emunah in Lexington, a Boston suburb. Resonant’s team arranged for half the power generated by the synagogue’s solar parking canopies to reduce the electric bills of low-income customers in the same utility service area; the other half will offset Temple Emunah’s power consumption. Underwood and his colleagues identified a clean energy investor willing to finance the project, Cambridge-based Sunwealth. With 50 percent of the power going to low-income subscribers, the project qualifies for an elevated low-income tariff under SMART, making it both profitable for Sunwealth and a socially responsible investment.

Allan Telio is senior vice president at Nexamp, another Boston-based solar company that works on community solar projects in Massachusetts and several other states. Making these projects more accessible to low-income subscribers is one of his big concerns. Rather than having a single 50 percent threshold for SMART’s low-income community solar tariff, he suggests that the incentive for bringing in low-income subscribers should be proportional to the percentage of low-income subscribers that a developer enrolls in a project. “Companies that are more efficient at handling low-income customers would be rewarded by additional incentives. They would be compensated for the extra effort that they are putting in, and they would be able to reap more benefits by spending more time and focus in this area.”

Telio also favors making proof of low-income status less onerous and intrusive. “The hoops people are asked to jump through to prove that they are poor is a deterrent to the ability of these programs to be successful,” he warns. Demanding tax returns, Social Security numbers, and other personal information only heightens the suspicions of people who are already wary of outsiders coming into their communities to market their wares.

A LONG with his call for “100 percent carbon-pollution-free power” by 2035, President Biden has declared his commitment to giving underserved communities a stake in America’s clean energy future. There are several concrete steps his administration should take to deliver on this ambition.

Reshaping and revitalizing the now-fading renewable energy Investment Tax Credit is a top priority. By 2024, the ITC’s sunset will be nearly complete, with only a 10 percent tax credit still applicable to commercial and utility-scale solar installations and nothing available to homeowners. In addition to restoring the full tax credit and extending it for ten years, the credit should be convertible to an up-front grant for those who need it most: low-to-moderate income households and the non-profit organizations serving them.

Federal resources must also be freed up to prepare older homes for solar installation. To date, only a few jurisdictions have pried loose funds for roof repairs and electrical system upgrades from the Low-Income Home Energy Assistance Program and Weatherization Assistance Program. Earmarked funding for these outlays is essential, ensuring that the necessary resources do not encroach on existing functions of energy assistance programs.

To make solar power more broadly affordable, there needs to be better coordination among the federal agencies serving the energy, employment, economic development, and housing needs of environmental justice communities. The current fragmentation of these programs is itself a deterrent to energy justice.

If cost-effectiveness is defined as the ability to deliver the largest number of solar electrons to the grid at the lowest cost, utility-scale solar on open land is the hands-down winner. But equalizing access to energy ownership and energy security has its own social value. We need to bring that value to the households and communities that have been the primary victims of environmental neglect and racial discrimination.

California, the District of Columbia, and Massachusetts are just a few of the jurisdictions that have begun to venture down this path. They and others are worthy partners to the Biden administration as it delivers on its commitment to clean energy and environmental justice. **TEF**

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