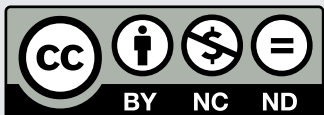




The National Impact of 30 Million Solar Homes: A Vision for an Equitable Economic Recovery Built on Climate Protection and Energy Democracy

By Katie Kienbaum and John Farrell
July 2021





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Cover Photo:

Solar installation at the American Indian Community Housing Organization in Duluth, Minnesota. Credit: Jason Edens



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About 30 Million Solar Homes

The Initiative for Energy Justice, the Institute for Local Self-Reliance, and Solar United Neighbors convened the 30 Million Solar Homes initiative to advance equitable federal policies that could bring the benefits of local solar energy to the equivalent of 30 million American households. More than 300 organizations and businesses have signed on in support of 30 Million Solar Homes. Learn more at www.30millionsolarhomes.org.

The Initiative for Energy Justice (IEJ) provides law and policy resources to advocates and policymakers to advance local and state shifts to equitable clean energy. IEJ addresses the persistent gap between grassroots communities at the frontlines of the climate justice fight and those sitting at relevant policymaking tables, and connects grassroots-led solutions with the best-available data, evidence, and scholarship. Through concrete technical policy tools and project models, IEJ supports frontline communities, justice-based organizations, and policymakers to foreground equity in a just transition to renewable energy. Learn more at iejusa.org.

The Institute for Local Self-Reliance (ILSR) is a national research and advocacy organization that partners with allies across the country to build an American economy driven by local priorities and accountable to people and the planet. Whether it's fighting back against the outsize power of monopolies like Amazon, ensuring high-quality locally driven broadband service for all, or advocating to keep local renewable energy in the community that produced it, ILSR advocates for solutions that harness the power of citizens and communities. Learn more at www.ilsr.org.

Solar United Neighbors (SUN) is a national 501(c)3 nonprofit that represents the needs and interests of solar owners and supporters across the country. SUN has been helping people go solar, join together, and fight for their energy rights since 2007. Learn more at www.solarunitedneighbors.org.

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Executive Summary

The 30 Million Solar Homes policies leverage federal power to spark investment that can serve more than 30 million households with rooftop or community solar over the next five years. This decentralized approach to reaching one in four households with solar maximizes and disperses the economic benefits of expanding clean energy in the fight against climate change, directly benefiting as many Americans as possible. More than three-quarters of total federal investment benefits marginalized communities, including low- and moderate-income communities, environmental justice communities, and solar deserts. Over 300 advocacy organizations, solar businesses, and faith communities have signed on in support of 30 Million Solar Homes.

Crucial elements include:

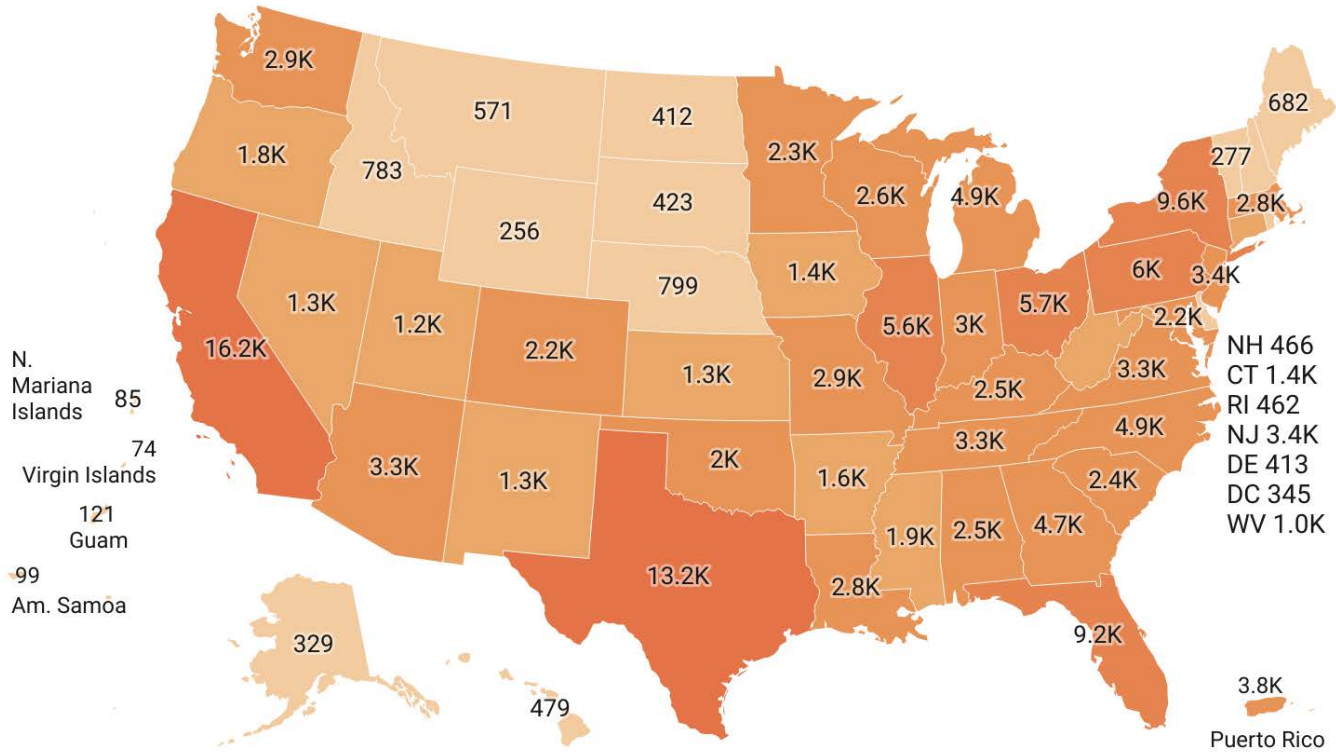
- Restoration, extension, and democratization of the Investment Tax Credit to provide a direct pay option for distributed solar projects and a 30% credit.
- Substantially increased investment in energy assistance and weatherization programs to permanently reduce energy burdens, especially with rooftop and community solar.
- New financing programs, including a national green bank and Clean Energy Victory Bonds.
- Substantial expansion of federal matching grants and loan guarantees for schools, rural homes and businesses, tribal communities, and equitable community solar projects.
- Loan loss reserves, especially to support clean energy portfolios within community development financial institutions.
- Virtual permitting, a national solar marketplace, rules supporting net metering and community solar requirements, and other market-boosting policies.
- Support for solar workers and small business owners from underrepresented groups.
- Measures to make sure federal programs and agencies are accountable to communities.

30 Million Solar Home Impact (New Solar Capacity)

The new rooftop and community solar capacity as proposed in the 30 Million Solar Home policy

NEW SOLAR CAPACITY (MEGAWATTS DC; K = THOUSANDS)

Legend: < 1,000 | 1,000 – 2,000 | 2,000 – 5,000 | 5,000 – 10,000 | > 10,000



Map: John Farrell, Source: Institute for Local Self-Reliance, Created with Datawrapper

Total Five-Year Impact

- 151 GIGAWATTS** NEW SOLAR CAPACITY
Equivalent to 30 million solar-powered homes
- 100 GIGAWATTS** NEW SOLAR CAPACITY IN MARGINALIZED COMMUNITIES
Equivalent to 20 million solar-powered homes
- \$137 BILLION** NEW FEDERAL INVESTMENT IN DEPLOYING LOCAL SOLAR

- 1.77 MILLION** NEW JOBS (IN JOB-YEARS)
- \$69 BILLION** ELECTRICITY BILL SAVINGS
- 48** EMISSIONS REDUCTIONS
Equivalent to shuttering 48 coal power plants for a year or taking 42 million cars off the road for a year

Ongoing Annual Impact

- \$30 BILLION** ANNUAL BILL SAVINGS
- 21** ANNUAL EMISSIONS REDUCTIONS
Equivalent to taking 21 coal power plants offline or removing 18 million cars off the road



Introduction

From the street, Shiloh Temple in North Minneapolis looks like many other houses of worship across the country. But a birds-eye view of the church reveals the unique connection Shiloh has to the heavens – a connection that allows Shiloh to make an outsized impact on the lives of its congregants and other residents of this historically Black community.

Shiloh Temple has a rooftop solar array that generates enough electricity for the church to lower its energy bills, freeing up money for other critical community needs. It also reduces energy costs for Shiloh’s congregants, and its installation and maintenance provide good-paying jobs for a diverse workforce. And because the church and its congregants actually own the system, it ensures that decisions about the power Shiloh generates stay in the community.¹

*Solar panels on the roof of Shiloh Temple in Minneapolis.
Credit: John Farrell*

Like Shiloh, communities of all colors, incomes, and backgrounds deserve access to equitable clean energy. The 30 Million Solar Homes initiative seeks to bring the benefits of local solar to the equivalent of 30 million homes, or one in four American households.

This report documents the economic impacts of the new and expanded federal programs of the 30 Million Solar Homes initiative. These programs would rapidly deploy more than 150 gigawatts of rooftop and community solar over five years in rural, urban, and tribal communities across the country. This new solar capacity would serve homes, but also small businesses, schools, nonprofits, and other community anchors. The 30 Million Solar Homes proposal focuses primarily on federal programs, agencies, and regulations to deploy solar, but it also makes recommendations for home weatherization, workforce development, and other equitable clean energy policies. Importantly, more than three-quarters of total federal investment under the 30 Million Solar Homes package would benefit marginalized communities, including low- and moderate-income communities, environmental justice communities, and communities in solar deserts.²

This initiative has three key aims:

- Maximize and widely disperse the economic impact of federal investment in clean energy by focusing on local solar.
- Ensure the clean energy transition benefits everyone, especially marginalized populations.
- Substantially reduce carbon dioxide emissions in the power sector.

Local rooftop and community solar is a superior strategy for bringing the economic benefits of federal clean energy investment to all Americans. Rooftop solar creates several times as many jobs per million dollars of investment as utility-scale solar because it requires more labor to install solar on many individual rooftops compared to one large, flat field.³ It also provides greater opportunities for local entrepreneurs to start small businesses and



A solar canopy on a building in New York City. Credit: Solar United Neighbors/Brooklyn SolarWorks

for families to lower and stabilize energy costs. In addition to creating more than one million jobs, investing in local solar would also save customers hundreds of billions of dollars on energy bills over the systems' lifetimes. As an added benefit, lower customer electric bills can reduce the amount of money utility trade organizations have to engage in anti-customer lobbying against renewable energy or cleaner air and water.⁴

For people without access to a sunny rooftop, community solar offers many of the same bill savings benefits and local economic impacts.

For people without access to a sunny rooftop, community solar offers many of the same bill savings benefits and local economic impacts. Plus, building solar closer to homes, schools, and businesses avoids many of the larger delivery, permitting, and environmental costs of utility-scale solar. In fact, transitioning the electric grid to clean energy using local solar could be cheaper than prioritizing only utility-scale solutions.⁵

Additionally, local solar – when combined with storage – can provide resilience to communities by generating power when the larger electric grid goes down. It also democratizes the pursuit of a clean energy future beyond utility shareholders and utility managers, allowing millions more Americans to join in.

Unlike most other clean energy proposals, the 30 Million Solar Homes package aims to address the nation’s racially inequitable energy system by prioritizing the marginalized communities that are currently most burdened by it. Two-thirds of the over 150 gigawatts of new solar capacity benefits marginalized communities, such as the rural poor, tribal communities, and people of color, along with more than three-quarters of the total federal investment. The benefits of local solar are particularly important for these communities as many have been disproportionately impacted by the pandemic and are facing a slow economic recovery.

While the federal government has many potential avenues to address climate change, none have the economic, equity, and environmental impact of 30 Million Solar Homes.

Like other types of renewable energy, rooftop and community solar would dramatically reduce carbon dioxide emissions and other pollutants from U.S. power generation. After full deployment over five years, this initiative would generate over five percent of U.S. electricity from local solar power alone and would reduce annual emissions by more than 83 million metric tons of carbon dioxide equivalent (CO₂e), the equivalent of taking 18 million cars off the road or closing 21 coal power plants.⁶ While the federal government has many potential avenues to address climate change, none have the economic, equity, and environmental impact of 30 Million Solar Homes.

The Initiative for Energy Justice, the Institute for Local Self-Reliance, and Solar United Neighbors spearheaded development of the 30 Million Solar Homes policy package, with input from environmental justice groups, the solar industry, climate advocates, and many others. More than 300 advocacy organizations, solar businesses, and faith communities have signed on in support of the policies.⁷

The first section of this report, **“The Impact,”** describes the potential impacts of the policy recommendations on solar deployment, the economy, the environment, and marginalized communities. The second section, **“The Policies,”** includes a brief explanation of the 30 Million Solar Homes programmatic and regulatory recommendations, organized by relevant federal agencies. Additional details on the analysis methodology, proposed policies, and economic impacts are located in the appendices.



Solar installers with a new solar homeowner. Credit: Solar United Neighbors



The Impact

If the 30 Million Solar Homes package is implemented as a whole, the federal government would invest a total of \$137 billion over the next five years to help deploy local rooftop and community solar systems across the country. This investment would leverage more than one hundred billion dollars in additional funds from other public and private entities.

In addition to deploying local solar, the 30 Million Solar Homes initiative would increase federal funding for energy efficiency, energy bill assistance, workforce development, and other clean energy initiatives. At least three-quarters of total federal investment would benefit marginalized communities.

After five years, this investment in local solar would result in more than 150 gigawatts of new solar capacity to serve the equivalent of 30 million American homes. (The actual solar capacity would serve businesses, farms, nonprofits, schools, and other community anchors in addition to households.) Of this new solar capacity, two-thirds, or the equivalent of 20 million homes, would serve or otherwise benefit marginalized communities.

Credit: Institute for Local Self-Reliance

The impact to communities across the country, described below, would be widespread and significant. Over the first five years, the 30 Million Solar Homes policies would create 1.77 million new jobs,⁸ save \$69 billion in energy costs, and reduce emissions by the equivalent of taking 42 million cars off the road for a single year or closing 48 coal power plants for a year.⁹

Importantly, since the 30 Million Solar Homes Initiative focuses on rooftop and community solar instead of large utility-scale installations, much more of the economic impact is injected and retained locally, directly benefiting solar homeowners, community solar subscribers, and solar installers in communities across the country.

For 30 Million Solar Homes policies that provide funds directly to install rooftop and/or community solar projects, we calculated the impacts on new solar capacity, job creation, bill savings, and emissions reductions. For policies that have a more indirect impact, such as the solar Investment Tax Credit (ITC), we estimated the effect on solar deployment and the associated economic benefits. For existing programs, estimated impacts represent only the additional new solar capacity we expect to be deployed as a result of the 30 Million Solar Homes policy proposals. More details on the analysis methodology are in Appendix A.

The economic impact of 30 Million Solar Homes is substantial, with enormous reductions in energy bills and energy burden, the creation of over a million new jobs, and reductions in emissions from dirty electricity production.

For a number of policies, we did not attempt to quantify the impact. This includes policies that address the regulatory structure of the energy market, such as requirements that utilities offer net metering, as well as policies that do not involve solar



Credit: John Farrell

deployment, such as weatherization or energy bill assistance. However, some of these policies would be crucial to the program's success in states that currently have prohibitive local solar policies.

The economic impact of 30 Million Solar Homes is substantial, with enormous reductions in energy bills and energy burden, the creation of over a million new jobs, and reductions in emissions from dirty electricity production. Even so, it's likely an underestimate of the impact because we only estimated the direct impact of certain solar-specific policies. For example, tens of thousands of jobs and millions in energy savings would also result from our proposed investments in weatherization programs, which we did not include in our estimates. We note these limitations of our analysis where feasible in the descriptions of the impacts below.

The rest of this section describes the national impact of the 30 Million Solar Homes policy package by impact category. For detailed tables of the impacts by state/territory, congressional district, or policy, see Appendix C.

New Solar Homes

The 30 Million Solar Homes initiative would create 151 gigawatts of new solar capacity over the next five years, which could serve the equivalent of 30 million American homes, or one in four households. **The rate of solar deployment would increase over time from 13 gigawatts in year one – an ambitious two-and-a-half times increase over the 5.1 gigawatts installed on residential and nonresidential properties in 2020 – to 56 gigawatts in year five.**¹⁰

We estimate that 58 percent of new solar capacity would be installed on-site on the rooftops and nearby land of homes, businesses, schools, and other community institutions. The remaining 42 percent of new capacity would be installed in community solar systems. Of the total 151 gigawatts of new solar, 66 percent would serve or otherwise benefit marginalized communities. More detail on the

assumptions used to identify rooftop and community solar and projects for marginalized communities are available in Appendix A.

The new solar systems deployed by the 30 Million Solar Homes initiative would generate 498 million megawatt-hours of electricity over the first five years of the project. Starting in year six, they would generate 217 million megawatt-hours annually.

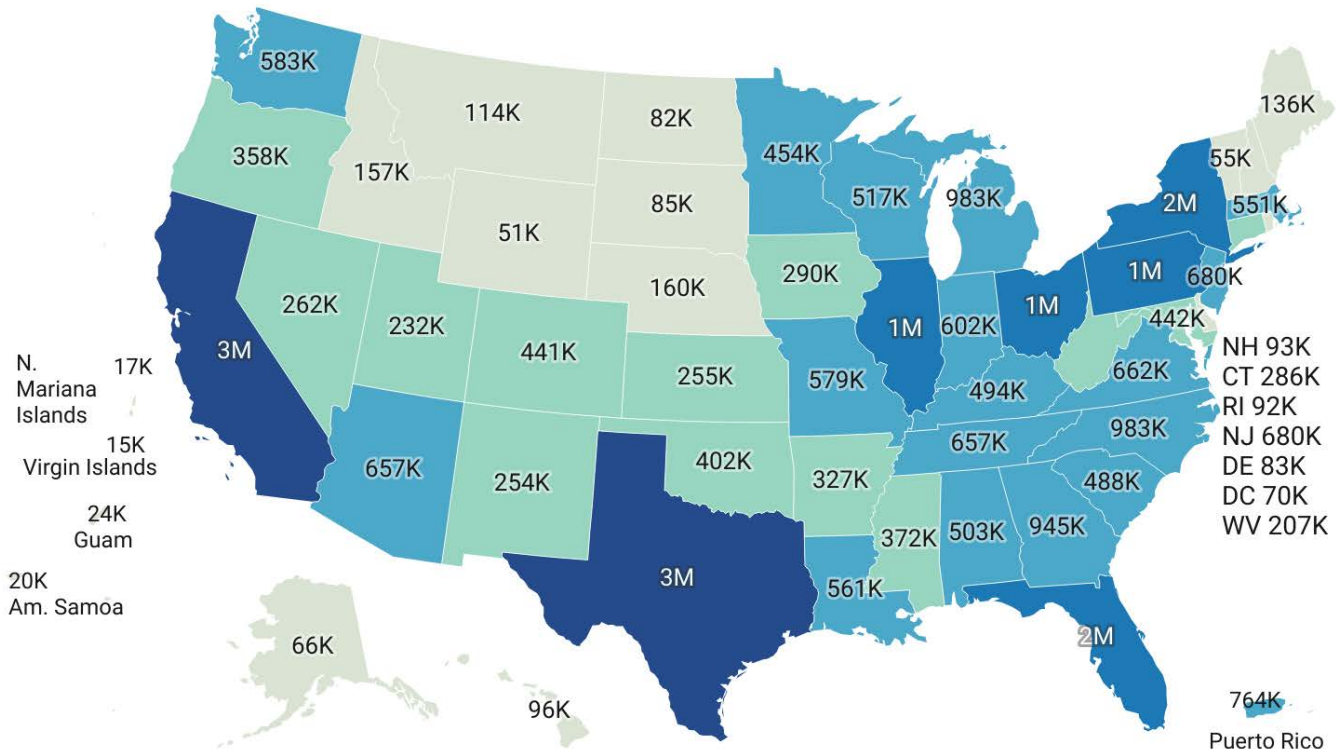
These numbers may underestimate the impact of the 30 Million Solar Homes initiative on solar deployment. Notably, we did not account for the impacts of a number of policies with less straightforward effects, we did not forecast solar cost declines over the five year timeframe, and we did not estimate how loan repayment could replenish federal funds. For several policies, we also selected federal grant

30 Million Solar Home Impact (New Solar Homes)

The solar homes equivalent of new rooftop and community solar adoption as proposed in the 30 Million Solar Homes policy

NEW SOLAR HOMES EQUIVALENT (K = THOUSANDS)

< 200,000 200,000 – 450,000 450,000 – 1,000,000 1,000,000 – 2,000,000 > 2,000,000



Map: John Farrell, Source: Institute for Local Self-Reliance, Created with Datawrapper

levels that could potentially be reduced without harming the programs' abilities to serve marginalized communities. Furthermore, "social contagion" or "peer effects" may lead to increased independent solar adoption near solar installations supported by this program.¹¹

Despite the conservative estimate of the impact of the 30 Million Solar Homes initiative, it represents a huge increase to solar capacity in the United States. By the end of 2020, the country had installed just 100 gigawatts of solar capacity total, including approximately 33 gigawatts of distributed solar systems on homes, businesses, or community solar.¹² The 30 Million Solar Homes initiative alone would result in a fivefold increase in distributed solar capacity over the next five years. Compared to a business as usual projection from Wood Mackenzie, this program would result in a fourfold increase in total residential and non-residential solar deployment over the next five years.¹³

New Solar Jobs

Over the five years of the 30 Million Solar Homes initiative, deployment of rooftop and community solar would create approximately 1,770,000 new solar job-years (defined as one job lasting one year, or "full-time equivalent"). This would ramp up from roughly 150,000 jobs during year one to 650,000 jobs during year five. This compares to approximately 231,000 jobs in the solar industry as of 2020.¹⁴

Approximately one million of the total job-years would be from installing rooftop solar. The remaining 700,000 job-years would be from installing community solar and larger on-site systems.

30 Million Solar Homes policy package has a number of measures to support a well-paid and diverse solar workforce

Local solar, especially when installed on rooftops, creates more jobs than large, utility-scale projects. We estimated 16.3 job-years for each megawatt of rooftop solar and 8.4 job-years for each megawatt of community solar.¹⁵

These figures only account for solar jobs created directly by the installation of rooftop and community systems through the 30 Million Solar Homes initiative. Many more jobs would be created by the proposal's sizable investments in other clean energy technologies and weatherization upgrades.¹⁶ Additionally, these investments have both an indirect and induced multiplier effect across multiple sectors resulting in increased local economic activity and impact.

Importantly, the 30 Million Solar Homes policy package has a number of measures to support a well-paid and diverse solar workforce, including tax incentives for projects that offer good-paying solar jobs, prioritization for businesses that hire locally or



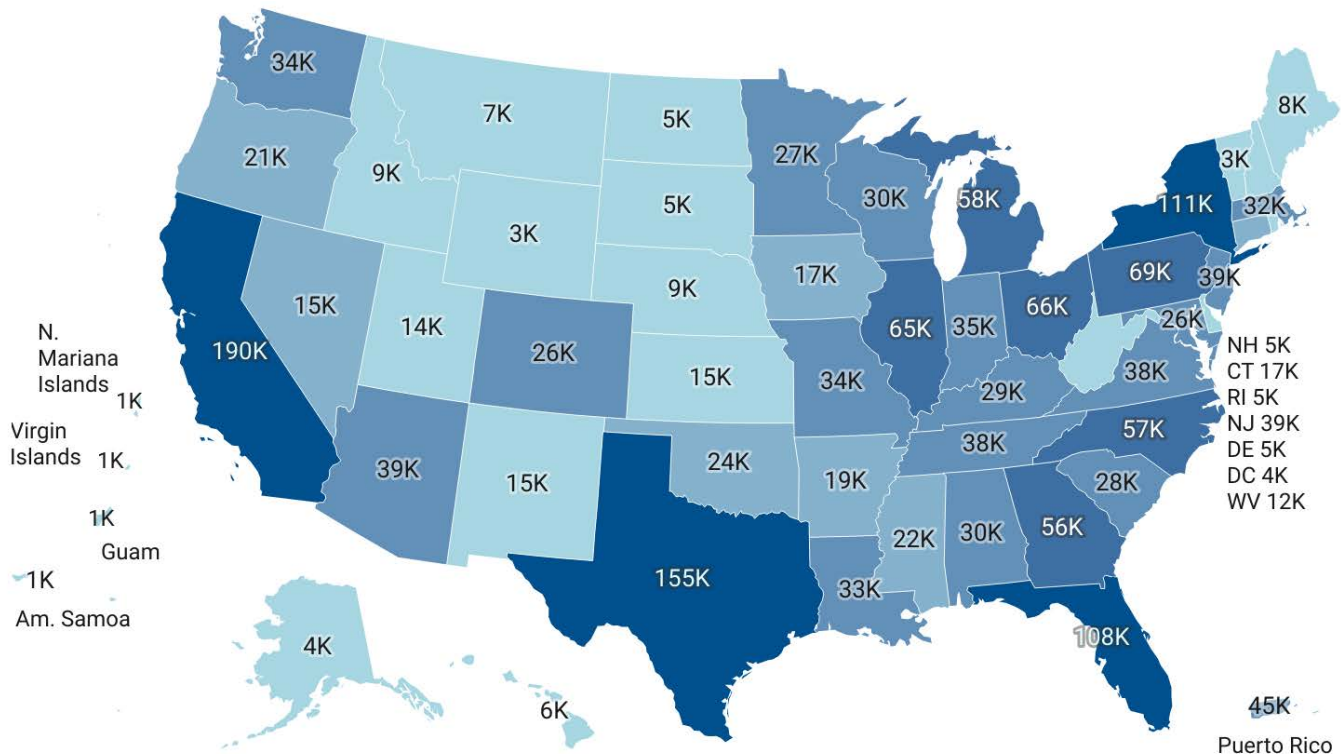
Credit: Solar United Neighbors

30 Million Solar Home Impact (Jobs)

The job-years created by the 30 Million Solar Homes policy

NEW JOBS (JOB-YEARS; K = THOUSANDS)

< 15,000 15,000 – 25,000 25,000 – 55,000 55,000 – 105,000 > 105,000



Map: John Farrell, Source: Institute for Local Self-Reliance, Created with Datawrapper

are owned by underrepresented individuals, and workforce development funding for solar workers from underrepresented groups in the industry, such as Black Americans, women, and former fossil energy workers. Deploying more than 150 gigawatts of new solar capacity in five years will require substantial growth in the solar workforce. The federal government must ensure these new positions are good, well-paying jobs accessible to Americans of all colors and backgrounds.

The United States lost more than 20 million jobs at the start of the pandemic in 2020. Job losses hit women and people of color – particularly women of color – the hardest.¹⁷ A year later, many of these jobs have been recovered, but 9.8 million Americans remain unemployed, almost twice as many as before the pandemic.¹⁸ Clean energy jobs created by the

30 Million Solar Homes initiative could help reduce this number while transitioning the nation to a more sustainable and equitable economy.

Energy Bill Savings

Over the next five years, the 30 Million Solar Homes initiative would create \$69 billion in electricity bill savings. Starting in year six, the installed solar would continue to generate bill savings of \$30 billion annually. Over their lifetimes, the new solar installations could save electric customers \$600 billion, funds that can reduce high energy burdens and/or be used to repay upfront subsidies. Members of marginalized communities would receive about \$46 billion of the five year bill savings and \$20 billion of the annual bill savings, about two-thirds of the total.

Health and Environmental Benefits

In the first five years of the 30 Million Solar Homes initiative, new local solar deployment would result in emissions reductions of 191 million tons of CO₂e, or carbon dioxide equivalent. This is equivalent to closing 48 coal-fired power plants for a single year or taking 42 million cars off the road for a year.²³ Solar energy systems installed through the initiative would continue to reduce emissions annually by 83 million metric tons of CO₂e in year six and beyond, with the equivalent annual effect of keeping 21 coal-fired power plants offline or keeping 18 million cars from the road.

State estimates of emissions reductions are based on the expected offset in fossil fuel power generation from the estimated new solar capacity. Solar deployment may not result in localized emissions reductions, because a solar project in Minnesota may offset production from a coal plant in North

Dakota, for example. These estimates also do not include emissions reductions resulting from the deployment of energy efficiency measures and other forms of clean energy supported by the 30 Million Solar Homes policies.

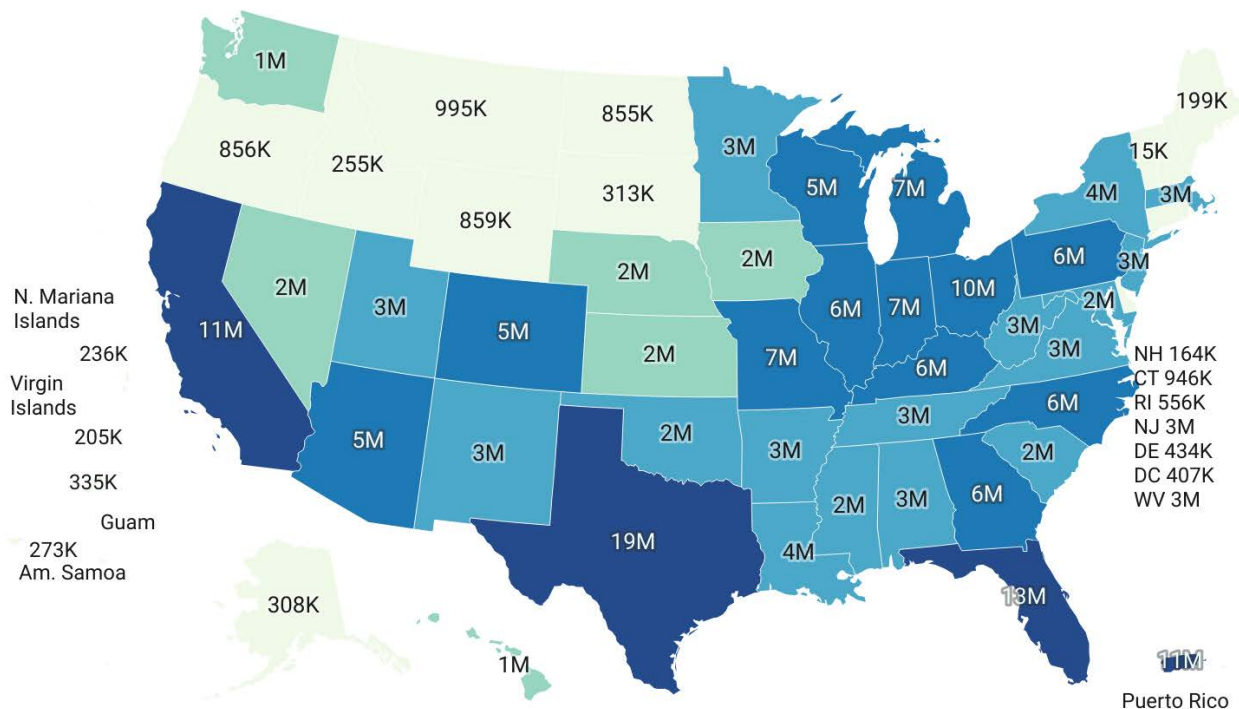
The projected emissions reductions provide significant financial value. Assuming a social cost of carbon dioxide of \$51 per metric ton, the current federal estimate, the 30 Million Solar Homes initiative would create more than \$9 billion in benefits in emissions reductions alone over the first five years and more than \$4 billion in benefits each year after.²⁴ This would add up to more than \$80 billion total over the expected life of the solar panels. The massive expansion of solar energy through the 30 Million Solar Homes initiative would also help reduce other pollutants from energy generation, including sulfur dioxide, nitrogen oxides, and particulate matter, that can cause heart disease and respiratory illnesses like asthma. Reducing these other pollutants could roughly result in more than \$1 billion in public health benefits annually.²⁵

30 Million Solar Home Impact (CO₂ Emissions Reductions)

The carbon dioxide equivalent emission reductions from the 30 Million Solar Homes policy

FIVE-YEAR EMISSIONS REDUCTIONS (METRIC TONS CO₂e; K = THOUSANDS, M = MILLIONS)

< 1,000,000 1,000,000 – 2,000,000 2,000,000 – 4,500,000 4,500,000 – 10,000,000 > 10,000,000



Though clean energy deployment doesn't necessarily result in localized emissions reductions, an increase in solar and storage capacity can reduce the need for polluting peaker plants, which are only occasionally used and often located in low-income communities and communities of color.²⁶ Marginalized communities face disproportionately high risks from localized air pollution.²⁷

In addition to global and community air quality benefits, solar energy and weatherization upgrades can directly impact household health and wellbeing by ensuring access to affordable, reliable energy and better housing quality.²⁸

New York Coalition Fights Dirty Peaker Plants

In New York City, the PEAK Coalition seeks to reduce disproportionate pollution burdens by closing the city's dirty, outdated peaker plants – particularly in low-income communities and communities of color – and installing modern renewable energy and energy storage systems in their place.

"Peaker plants are a prime example of environmental racism," said Elizabeth Yeampierre, Executive Director of UPROSE, one of the coalition partners. "This isn't just a New York City problem either, environmental justice communities across the country suffer from historic health disparities from the concentrated siting of polluting infrastructure."²⁹

In addition to polluting nearby communities, the very rarely used peaker plants have cost ratepayers \$4.5 billion over the last decade, a cost that is as much as 1,300 percent higher than New York's average electricity price. This contributes to the unaffordable electricity bills faced by hundreds of thousands of energy-burdened New Yorkers.

"We can no longer afford to prop up fossil fuel peaker plants that have been spewing pollution into our communities for decades," said Annel Hernandez, Associate Director of the New York City Environmental Justice Alliance, another coalition member.

Impact in Marginalized Communities

The targeted investment of 30 Million Solar Homes will make it easier for any American to get solar. Several policies, including the tax credit reforms and SolarAPP virtual permitting, will reduce the cost of solar for everyone. By growing the solar industry, the program will also result in more job opportunities and more choices for Americans looking for solar installers.



Credit: Solar United Neighbors

To succeed in improving solar access for all, this program targets more than three-quarters of new federal investments in clean energy to benefit marginalized communities, including low- and moderate-income communities, environmental justice communities, and solar deserts. Approximately 100 gigawatts of solar capacity, the equivalent of 20 million homes, would serve or otherwise benefit marginalized communities. This new solar capacity would deliver \$46 billion in electricity bill savings total over the first five years and then \$20 billion in annual bill savings starting in year six.

The 30 Million Solar Homes target of 75 percent of federal investment significantly exceeds common equity goals, such as the Biden-Harris administration's Justice40 initiative which promises 40 percent of benefits to disadvantaged communities.³⁰ A high target is necessary to begin to address the long legacy of harm to communities of color and low- and moderate-income communities caused by utilities and fossil fuel providers, and federal and state governments. These harms include financial, health, and social damages wrought by high energy costs; disproportionate pollution and health burdens; redlining and racially discriminatory federal aid programs; unchecked corporate power in rural and urban communities; and inadequate labor protections and social services.



The Policies

To equitably bring local solar to one in four American households, the 30 Million Solar Homes program assembles a broad package of federal investment that spans multiple federal agencies, from the Department of Energy to the Department of Health and Human Services. The package includes changes to existing federal programs and policies as well as the creation of new programs and regulations. Much of the package focuses on investments that increase rooftop and community solar deployment, creating a direct link between federal investments and new solar megawatts, with a majority of the federal dollars targeted to benefit marginalized communities. Most programs in the 30 Million Solar Homes initiative also include a gradual ramp up in funding over the next five years, to facilitate this massive expansion of local solar.

Some recommendations alter existing programs, such as significant investments in the U.S. Department of Agriculture’s Rural Energy for America Program and the Department of Energy’s Weatherization Assistance Program. Leveraging these existing federal programs and systems would help the initiative rapidly begin to deploy solar. Other recommendations are new programs, such as the Clean Energy Victory Bonds proposal, or are outlined in introduced legislation, such as the National Climate Bank Act. These new programs would expand investment to the necessary scale and address gaps and inequities in current federal policy.

While much of the 30 Million Solar Homes package proposes ways the federal government can directly support the deployment of local rooftop and community solar projects, some policies have a more indirect impact, including modifications to the federal solar Investment Tax Credit or investment in deploying virtual permitting through the SolarAPP. A few policies also aim to remove barriers to local solar in the current structure of the electricity market, by increasing access to net metering and community solar programs.



Credit: Jason Edens

In total, the 30 Million Solar Homes initiative calls for the federal government to invest more than \$500 billion into local solar and other relevant clean energy and energy justice efforts

The 30 Million Solar Homes package is not just a solar program, however. It broadly aims to reduce energy burdens (the share of income devoted to energy costs) of the most vulnerable Americans. Thus, it calls for major investments in programs like the Weatherization Assistance Program and Low-Income Home Energy Assistance Program to make energy bills more affordable and, in the long run, to transform annual bill assistance into self-reliance through local solar energy. It also recommends funding for other clean technologies like wind energy and energy efficiency, for workforce development programs that serve underrepresented groups, and for clean energy outreach and education programs. In total, the 30 Million Solar Homes initiative calls for the federal government to invest more than \$500 billion into local solar and other relevant clean energy and energy justice efforts, with \$137 billion of those funds invested in distributed rooftop and community solar projects.

The 30 Million Solar Homes policy package sets a goal of ensuring at least 75 percent of total federal investment in clean energy benefits marginalized communities, which we have defined as including, but not limited to, communities and households that are low- and moderate-income, in environmental justice communities, or in solar deserts. To meet this goal, the policy recommendations create carve outs and prioritizations within federal financing programs. The policies also eliminate barriers to solar in marginalized communities, such as by guaranteeing that affordable housing residents benefit economically from clean energy upgrades,

Summary of 30 Million Solar Homes Policies and Impacts

DEPARTMENT	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	KEY POLICIES
Department of Treasury	11,810	45,590	Solar ITC, CDFI Loan Loss Reserves, Green Bank, Clean Energy Bonds
Department of Health and Human Services	3,380	34,350	LIHEAP
Department of Energy	11,660	53,360	WAP, SolarAPP, marketplace, clean energy grants and financing
U.S. Department of Agriculture	3,300	900	Rural clean energy grants and financing
Dept of Housing and Urban Development	120	2,250	Grants for solar on affordable housing
Department of Interior	10	200	Solar + storage grants for off-grid tribal buildings
TOTAL	30 million homes	\$137 billion	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

and they establish public reporting requirements. These measures are necessary to increase equity in solar adoption; solar incentives and campaigns that do not target marginalized communities fail to correct inequities and in some cases, can even make inequities worse.³¹

Comparatively, the Biden-Harris administration's Justice40 Initiative sets the target at 40 percent of relevant benefits.³² However, considering the history of disproportionate environmental harm and underinvestment in these communities and their heightened vulnerability to the effects of climate

change, the 30 Million Solar Homes policies would enable the federal government to aim higher. Even very targeted investments in the most vulnerable communities will have spillover benefits by scaling up and lowering costs for anyone to go solar.

Below, an overview of the 30 Million Solar Homes recommendations are organized by policy and federal agency. For a more detailed description of the policy proposals organized by intended effect, see Appendix B. For a table showing the expected impact of individual policy proposals, see Appendix C-1.

Department of Treasury

In the Treasury Department, the 30 Million Solar Homes investments fall into three general categories: making tax credits more equitable, supporting financial institutions, and issuing clean energy bonds. Total new federal investment in distributed solar would equal more than \$45 billion over five years. The investments are expected to bring solar to 12 million households, just over one-third of the program total.

This policy package recommends improvements to two existing tax incentives, the solar Investment Tax Credit and the Low-Income Housing Tax Credit. The Investment Tax Credit in particular is widely considered to be one of the most impactful federal solar policies, helping deployment grow by more than 10,000 percent over the last 15 years.³³ However, changes must be made to make it more equitable.

For the Investment Tax Credit, the 30 Million Solar Homes proposal expands access by transforming it into a direct pay option for residential and commercial projects under two megawatts, making it accessible to individuals and developers with low tax liability. It would also explicitly allow non-taxable entities to participate, such as local governments and rural electric cooperatives. The proposal restores both the residential and commercial tax credits (which are currently at 26 percent and scheduled for reductions in 2023) to 30 percent for the next 10 years, including a gradual sunset period.

Finally, the 30 Million Solar Homes initiative proposes three “adders” to the tax credit. For commercial solar projects only, it would provide a bonus 10 percent tax credit for projects that provide Davis-Bacon prevailing wages and benefits. For both commercial

Summary of Policies and Impacts in Department of Treasury

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
CDFI Loan Loss Reserve Seed Funding	750	500	Backstops new solar lending by supporting loss reserves at local CDFIs
CDFI National Loan Loss Reserve	190	250	Starts a national loan loss reserve for CDFI clean energy lending
Clean Energy Victory Bonds	3,530	10,000	Issues federal bonds for clean energy
National Green Bank	1,820	5,000	Launches a new federal financing tool for clean energy
Solar ITC	5,530	29,840	Makes the ITC more accessible to low-income individuals, nonprofits and others
Department of Treasury TOTAL	11,810	45,590	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.



Credit: Solar United Neighbors

and residential projects, 10 percent bonus credits would be available for projects primarily serving marginalized communities or that provide resilience by combining solar and energy storage. No project would be able to get more than a cumulative 45 percent tax credit. With these modifications (including direct pay and credit extension), the expansion of the solar Investment Tax Credit would be worth roughly \$30 billion over five years and result in the equivalent of more than 5 million new solar homes.³⁴

The 30 Million Solar Homes proposal would also modify the existing Low-Income Housing Tax Credit to prioritize projects with on-site solar energy that provides a direct financial benefit to residents, such as through electricity bill credits. (We did not include this policy in the impact estimate.)

The second set of Treasury policies would promote solar investment through community-oriented financial institutions. This includes \$100 billion to establish a national green bank (with an estimated five percent of funds used for distributed solar projects), making modifications to Senate Bill 283, the National Climate Bank Act, to target more funding to marginalized communities and support tariffed on-bill financing (also known as Pay As You

Save[®]), among other measures.³⁵ It also includes \$1.5 billion over five years to support creation of loan loss reserves for community development financial institutions to support financing for solar and other clean energy projects in marginalized communities and reduce perceived risk.

The expansion of the solar Investment Tax Credit would be worth roughly \$30 billion over five years and result in the equivalent of more than 5 million new solar homes.

The final Treasury program is the new Clean Energy Victory Bonds program, which would authorize \$50 billion in bond issuance to support clean energy investment. We estimated it would provide approximately 20 percent of the revenue for distributed solar, with 75 percent of solar funds dedicated to distributed solar projects that are owned by, reduce the energy bills of, or otherwise benefit members of marginalized communities.

Department of Health and Human Services

In addition to substantially increasing funding for the Low-Income Home Energy Assistance Program (LIHEAP) at the Department of Health and Human Services, the 30 Million Solar Homes campaign recommends new, targeted funding for local solar energy to provide long-term energy assistance. The suggested policies represent \$34 billion in new federal investment in distributed solar over five years and would allow over 3 million low-income households to benefit from solar energy.

LIHEAP allocates money to states to pay a portion of utility bills on behalf of low-income households, to ensure access to essential services such as home heating and cooling. Despite spending billions of dollars every year, LIHEAP still only serves about one-fifth of currently eligible households.³⁶ By funding rooftop solar systems and community solar shares in addition to energy costs, the department could provide long-term financial relief for these families and reduce the need for annual energy bill assistance.



Credit: John Farrell

Summary of Policies and Impacts in Department of Health and Human Services

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
LIHEAP Community Solar Shares	1,420	14,950	Uses community solar shares as permanent energy assistance
LIHEAP Pay for Success Financing	680	5,810	Uses private capital for innovative energy assistance programs
LIHEAP REACH	470	5,000	Reauthorizes a grant program to integrate solar into energy assistance
LIHEAP Transfer	810	8,600	Reserves a portion of LIHEAP funds (not used for bill assistance) for providing solar access
Department of Health and Human Services TOTAL	3,380	34,350	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

To increase households' energy self-sufficiency, the 30 Million Solar Homes policies make a number of recommendations to increase integration of solar energy into LIHEAP services. This includes clarifying that solar is an eligible use of LIHEAP funds, providing energy bill assistance through annually transferable community solar shares, and reserving a portion of funds set aside for uses other than direct bill assistance for solar deployment.³⁷ The policies also recommend financing innovative solar projects for LIHEAP by reauthorizing the Residential Energy Assistance Challenge competitive grant program with \$5 billion available over five years and leveraging Pay for Success financial tools.

The suggested policies represent \$34 billion in new federal investment in distributed solar over five years and would allow over 3 million low-income households to benefit from solar energy.

Still, the 30 Million Solar Homes initiative recognizes the extreme need for home energy cost assistance, especially as the climate crisis leads to hotter summers and more extreme weather. Although not included in our calculations of federal solar investment or impact, we recommend expanding household income eligibility limits for LIHEAP and steadily increasing program funding to serve all eligible households, at an approximate total cost of \$150 billion over the next five years. In recent years, annual appropriations for LIHEAP have been below \$4 billion, though Congress provided additional funding for the program during the pandemic.³⁸

Additional recommendations that aren't included in the solar impact estimates seek to improve LIHEAP services by requiring an annual equity report and providing resources, including grants, to tribal governments that want to directly manage their own LIHEAP programs.³⁹

Community Solar Stretches Impact of Local Energy Assistance

In the summer of 2017, the Leech Lake Band of Ojibwe in Northern Minnesota and the Rural Renewable Energy Alliance partnered to build the first community solar installation integrated into low-income energy assistance in the state of Minnesota and across the nation.⁴⁰

Money that the tribe receives from excess energy produced by the 200 kilowatt solar installation is designated to about 100 low-income families who participate in LIHEAP. Almost half of all tribe members live below the federal poverty line, and the solar array helps Leech Lake Band stretch vital energy assistance dollars further. "Now we know we have this revenue that's helping our people. We know we can pretty much count on it as long as the sun shines," Brandy Toft, environmental deputy director for the Leech Lake Band of Ojibwe, said at the time.⁴¹

In addition to lowering energy costs for residents, the project provided an opportunity for students from Leech Lake Tribal College to get hands-on training in solar installation.



Leech Lake Band low-income solar installation. Credit: Leech Lake Band of Ojibwe

Department of Energy

Within the Department of Energy, the 30 Million Solar Homes initiative recommends expanding the Weatherization Assistance Program (WAP), increasing the department's grantmaking and financing capabilities, and supporting its education and research activities. In terms of specifically deploying

distributed solar, the recommended policies would result in new federal investment of \$53 billion over five years, serving over 10 million households.

Many WAP service providers do not take advantage of the opportunity to integrate solar into weatherization

Summary of Policies and Impacts in Department of Energy

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
Community Solar Loan Guarantees	2,360	1,000	Provides loan guarantees for equitable community solar projects
EECBG	470	1,250	Reauthorizes clean energy block grants for state, tribal, territorial, and local governments
Resilience Grant Competition	740	7,750	Funds solar + storage grants for resiliency in marginalized communities
School Solar Grants	2,450	17,500	Funds solar grants for schools to reinvest energy savings into operations
Solar Grant Program for Marginalized Communities	1,780	11,250	Funds rooftop and community solar for marginalized communities
SolarAPP	1,830	100	Supports widespread adoption of virtual, automated solar permitting
Federal Solar Marketplace	1,170	50	Creates a national online marketplace for quotes for solar and storage systems
WAP Grantee Annual Plans	290	4,820	Assists states, tribes, and territories with incorporating solar into weatherization services
WAP Walkaways	570	9,640	Prioritizes homes deferred from weatherization services for rooftop or community solar
Department of Energy TOTAL	11,660	34,350	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

projects.⁴² The recommended policies enable greater deployment of solar through WAP by directing the Department of Energy to help grantees incorporate solar into their weatherization programs, by eliminating unnecessary spending limits that keep cost-effective upgrades from being installed, and by prioritizing homes that can't be safely weatherized for solar energy. We project that more than 800,000 households would receive solar through WAP.

In addition to WAP, the 30 Million Solar Homes policies provide new funding to support Energy Department solar grants, loans, and other financing programs. The policies would reauthorize the Energy Efficiency and Conservation Block Grant program, last funded after the 2008 recession, as well as create new programs to help finance the deployment of solar. These new programs would help fund locally-owned, equitable community solar installations; solar plus storage systems that increase resilience; on-site solar for schools that reinvest energy savings into operations; and rooftop and community solar projects in historically underserved communities.⁴³ These programs require the Department of Energy to reserve all or a portion of grant and financing capacity for projects that benefit marginalized communities. These funding and financing programs would result in total federal investment of nearly \$40 billion over five years in distributed solar and support solar for the equivalent of 8 million households.

The solar for schools program, in particular, can have a significant impact. Proposed funding could reach tens of thousands of schools, particularly those that serve a high proportion of low-income students, lowering energy bills and freeing up more money for educational priorities. A total program budget of \$17.5 billion over five years would improve school finances by deploying more than 12 gigawatts of new solar capacity.

Beyond direct solar deployment, the Department of Energy also plays a key role in providing training, research, and other resources on clean energy. The 30 Million Solar Homes platform directs hundreds of millions of dollars to provide solar workforce



Solar panels installed on the roof of a high school. Credit: Jason Edens

development for underrepresented groups, conduct solar education and outreach activities, and continue research on barriers to solar deployment, such as long permitting timelines and buildings' structural issues. Specifically, \$100 million in new funding to support the SolarAPP virtual permitting tool is expected to indirectly lead to almost 2 million solar homes. The policy program also calls for \$50 million per year to support a nationwide marketplace for getting solar bids, anticipated to help reduce costs through competition and lead to 1 million new solar households. Other than the SolarAPP tool and solar marketplace, we did not include policy recommendations involving research and training at the Department of Energy in our solar impact analysis.

Although not included in the estimates of solar impact and new federal investment in solar, we also recommend expanding eligibility and significantly boosting base funding for WAP to provide weatherization services to more low- and moderate-income households. We suggest increasing the WAP budget to approximately \$50 billion total over the next five years, compared to current fiscal year 2021 to 2025 appropriations of \$1.73 billion total.⁴⁴ This would significantly increase the number of homes weatherized by the program, which is currently only able to serve a small portion of eligible households, bringing the health benefits and cost savings of weatherization to millions more American families and creating tens of thousands of jobs. According to the Department of Energy, every dollar invested in weatherization creates \$1.72 in energy benefits and \$2.78 in non-energy benefits.⁴⁵

Department of Agriculture

The 30 Million Solar Homes policies target existing programs at the Department of Agriculture that help deploy clean energy technologies at rural homes and businesses. These upgrades are particularly important in rural areas because rural Americans, especially low-income households, people of color, and the elderly, have disproportionately high energy burdens compared to the national median.⁴⁶ These policies call for total new federal investment in local solar of approximately \$900 million over five years to provide solar to the equivalent of over 3 million households.

The vast majority of the impact is through the Renewable Energy for America Program (REAP), which provides grants and loan guarantees to rural small businesses and agricultural producers to help install renewable energy and energy efficiency upgrades. To increase the impact of the program, the 30 Million Solar Homes policies recommend expanding program eligibility to nonprofits and

residences in rural areas, lowering the eligibility threshold for small agricultural producers, and increasing baseline program funding to provide at least \$1.25 billion over five years. This would be a significant increase over current mandatory annual funding of \$50 million.⁴⁷ For more equitable distribution of grants and loan guarantees, the policies suggest that more than half of funding be reserved for projects on tribal lands and in other marginalized communities. The policies also recommend restricting REAP eligibility for concentrated animal feeding operation biogas projects, which fail to address the health and environmental impacts of large manure lagoons that disproportionately impact communities of color.⁴⁸ The modifications to REAP would result in additional federal investment in local solar of more than \$800 million over five years, leveraging more than \$30 billion in financing from other public and private sources, to deploy the equivalent of more than 3 million new solar homes.

Summary of Policies and Impacts in Department of Agriculture

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
EECLP [^]	10	-	Removes barriers to capital for electric co-ops for clean energy lending programs
REAP	3,280	810	Makes REAP accessible to small farmers, rural households, and nonprofits, and increases budget
RESP	5	90	Removes barriers to capital for electric co-ops for clean energy lending, increases program budget
U.S. Department of Agriculture TOTAL	3,300	900	

^{*}Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

^{**}Rounded figures may not sum correctly.

[^]30 Million Solar Homes policies do not include new funding for this program.



Credit: Solar United Neighbors

Solar Saves Money in West Virginia's "Poultry Capital"

The town of Moorefield is known as the Poultry Capital of West Virginia, but raising all of those birds uses a lot of energy. In 2012, local farmer Ward Malcolm installed solar on his two chicken houses to offset some of that energy and save money on his electricity bills.⁵⁰

To help pay for the solar panels, Ward applied for a grant through the Rural Energy for America Program. The grant, along with the federal solar investment tax credit, helped lower his project costs, enabling Ward to pocket more of the bill savings from the new solar panels. At the time, he estimated that the investment would pay off in around 15 years, which is less than the lifetime of the panels.

"As a business person, I just looked at the dollars and cents," explained Ward. The solar panels offset nearly all of his electricity use and have kept his energy costs affordable as electricity rates rise.

The new panels on Ward's chicken houses have also encouraged some of his neighbors to consider investing in solar. "Seeing solar panels gets people excited about it," he said.

These policies call for total new federal investment in local solar of approximately \$900 million over five years to provide solar to the equivalent of over 3 million households.

Additionally, the 30 Million Solar Homes policies recommend improving participation in the Rural Energy Savings Program and Energy Efficiency and Conservation Loan Program. These programs provide capital to rural electric cooperatives – which serve about 1 in 7 Americans – for solar and efficiency inclusive financing projects. Tariffed on-bill inclusive financing programs, such as Pay As You Save[®], increase access to clean energy financing for renters, low-income households, and people with low credit scores.⁴⁹ The policies call on the department to increase program outreach, eliminate barriers to participation, and increase program funding.

Department of Housing and Urban Development

At the Department of Housing and Urban Development, the 30 Million Solar Homes initiative recommends a competitive grant program for landlords of affordable housing as well as leveraging existing affordable housing programs and the Community Development Block Grant (CDBG) program to increase solar deployment in low- and moderate- income communities. The policies also call for a number of changes to department policies and practices that would reduce barriers to solar deployment and facilitate greater adoption. In total, the recommendations call for over \$2 billion in new federal investment in local solar to serve over 100,000 households.

The 30 Million Solar Homes initiative recommends creating a competitive grant program for public housing authorities to provide solar grants to building owners that participate in the Section 8/ Housing Choice Voucher program, creating bill savings for low-income residents. The program would require building owners to pass energy savings on to residents and prevent them from charging residents for the installation costs or otherwise raising costs for residents. This is the only policy included in the solar impact analysis.

Although these recommendations aren't included in the analysis, the Department should also provide additional guidance to recipients of CDBG, CDBG Disaster Recovery, and other block grant programs on how to use funds to increase local solar deployment in marginalized communities, including through local loan loss reserves and accessible solar financing. Each year, the agency provides billions of dollars in grants and tens of billions in loan guarantees to states, territories, tribes, and local governments that could be used to fund these efforts.⁵¹

In addition, the 30 Million Solar Homes initiative recommends policy changes to enable solar deployment on affordable housing and in other American communities. Importantly, the department should issue national guidance to ensure residents of federally subsidized housing can pocket the bill savings from solar energy and efficiency upgrades.⁵² It should also restart the Renew300 Initiative,⁵³ increase caps on power purchase agreements for public housing authorities, and prohibit discriminatory homeowners' association bans on solar installations. More detail on these policies not included in the analysis is in the 30 Million Solar Homes policy white paper in Appendix B.

Summary of Policies and Impacts in Department of Housing and Urban Development

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
Section 8/HCV Solar Grants	120	2,250	Funds solar grants for affordable housing landlords, and directs solar benefits to residents
Dept of Housing and Urban Development TOTAL	120	2,250	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.



Credit: Stephen Yang/The Solutions Project (CC BY 2.0)

Department of the Interior

The 30 Million Solar Homes initiative recommends the Interior Department invests \$200 million in new federal funding for local solar to provide solar energy to the equivalent of over 10,000 households in off-grid tribal communities.

While most of the homes, farms, and businesses in the United States were connected to the electric grid decades ago, tens of thousands of Native Americans living on tribal lands still do not have access to home electrification. In the Navajo Nation in particular, about 15,000 households do not have electricity,

accounting for three-quarters of unelectrified homes nationally.⁵⁴ At the same time, the community is impacted by polluting energy industries that have damaged air and water quality.⁵⁵

To address these issues, the 30 Million Solar Homes policies recommend creating a new grant program at the Department of the Interior to deploy solar plus storage systems for off-grid tribal homes and businesses, with at least \$400 million available (approximately half for solar and half for energy storage).

Summary of Policies and Impacts in Department of the Interior

POLICY PROPOSAL	NEW SOLAR HOMES (THOUSANDS)	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	DESCRIPTION
Tribal Solar + Storage Grants	10	200	Funds solar + storage systems for off-grid tribal homes, businesses, and others
Department of Interior TOTAL	10	200	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

Other Policies

Beyond taking the above agency actions to enable solar deployment, the 30 Million Solar Homes initiative recommends making various regulatory and policy changes to reduce barriers to local solar and promote equitable and transparent distribution of funding.

Regulatory changes to unlock the potential of local solar energy include requirements that utilities with low local solar development offer net energy metering for on-site power generation, that utilities with significant solar development conduct integration capacity analyses and value of solar calculations, and that all utilities establish equitable community solar programs, and be required to solicit non-wires alternatives for proposed high-voltage transmission projects.

To ensure programs are administered equitably, the 30 Million Solar Homes proposal recommends a number of measures to facilitate efficacy and transparency. The policies call for a federal inter-agency partnership to coordinate implementation of the initiative across different agencies. Programs funded through the 30 Million Solar Homes initiative would also be required to publicly track demographic data, evaluate program performance with input from marginalized communities, and prioritize hiring businesses that are owned by underrepresented individuals or that hire locally.

We did not estimate solar impact or new federal investment in local solar for any of the programs in this section, or otherwise include them in the impact analysis. However, many of these policies are essential to ensure all households can access the benefits of local solar energy.

More detail on these proposals can be found in the 30 Million Solar Homes policy white paper in Appendix B.



Solar panels at a preschool. Credit: Solar United Neighbors



Conclusion

The current Congress and administration intend to act on climate change, but the method matters.

The 30 Million Solar Homes program prioritizes widespread economic, financial, and employment benefits from climate action with its focus on rooftop and community solar and its prioritization of marginalized communities. It also avoids reliance on centralized power generation and the electric utilities that have helped cause the climate crisis through large-scale fossil fuel combustion. Few climate approaches can promote energy democracy as effectively, democratizing the means and the benefits of the clean energy system.

In total, the recommendations of the 30 Million Solar Homes initiative would provide solar energy to over 30 million households, create over 1.7 million jobs, provide ongoing energy bill savings of nearly \$30 billion per year, and make a significant dent in carbon dioxide emissions. These results come from a federal investment of \$137 billion into local solar projects, leveraging billions more in other private and public spending and targeting the majority of funds to benefit marginalized communities. It would also make significant additional investments in reducing energy burden through expanded energy assistance and weatherization.

The United States faces a unique set of challenges: a lingering economic downturn from COVID, a climate crisis, and long-standing racial inequality. 30 Million Solar Homes provides a strategy to make progress on all three, together.

*A community solar array with beehives in the foreground.
Credit: John Farrell*

Appendices

Appendix A Methodology

The economic impacts for the 30 Million Solar Homes policy package were estimated based on the expected additions of new rooftop and community solar for each policy, above what would be deployed as a result of existing policies and program capacity.

New solar megawatts were estimated based on the direct and leveraged investments. For example, the funds from selling Clean Energy Victory Bonds are expected to be directly invested in the capital cost of new solar projects along with matching private funds. The CDFI Loan Loss Reserve Seed Funding Grant Program, on the other hand, provides a backstop for funding provided by local CDFIs. An appropriate leverage ratio was calculated to determine the likely amount of funding available to cover the capital costs of solar installations. Generally, we estimated the impact of these programs by calculating the total new funding for distributed solar (including federal funds and funds leveraged from other public and private sources) and using installed cost estimates and assumed ratios of rooftop and community solar to arrive at an estimate of new solar capacity deployed. Details on program-specific methodology are provided at the end of Appendix A.

The amount of new solar was directly related to our cost estimates for rooftop solar (\$3.26 per Watt) or community solar (\$1.90 per Watt). These figures were arrived at by extending a trendline out two years from the 2014-2019 cost data for median residential rooftop and large, non-residential solar costs from the Lawrence Berkeley National Laboratory 2020 Tracking the Sun data and were validated by consulting an experienced community solar developer.⁵⁶ The prices remain fixed for the five-year program life in the analysis. As an example of the application, \$10 million of capital would result in approximately 3.1 megawatts (DC) of rooftop solar, or 5.3 megawatts of community solar.

Jobs estimates were similarly tied to the project type. Rooftop solar projects are expected to create 16.3 job-years (one full-time job for one year) per megawatt. Community solar projects are expected to generate 8.4 jobs per megawatt.⁵⁷ Both compare favorably to utility-scale solar, which produces no more than 6.8 jobs per megawatt.^{58, 59}

Energy savings estimates are based on a state specific calculation averaging the PVWatts annual

production estimates for the four most populous cities in each state, for a panel tilt equal to the city's latitude.⁶⁰ Similarly, energy savings are based on state average retail electricity rates and presume the customer is able to offset their own electricity use on a one-to-one basis.⁶¹

Emissions reductions are based on state averages of carbon dioxide equivalent intensity of a kilowatt-hour of electricity from the Environmental Protection Agency.⁶² State and congressional district estimates of emissions reductions represent the portion of overall emissions reductions that would be associated with the new solar capacity deployed in that particular geographic area, not necessarily localized reductions in emissions.

For impacts related to marginalized communities, most are spelled out specifically in the policy language in Appendix B as minimum standards. For example, of the money set-aside for solar in the Clean Energy Victory Bonds policy proposal, 75 percent is reserved for "distributed solar projects that are owned by, reduce the energy bills of, or otherwise benefit members of marginalized communities." Otherwise, ILSR generally assumed a generic share of 21 percent of solar projects would benefit marginalized communities, reflecting the latest data from Lawrence Berkeley National Laboratory showing the share of solar adopters with incomes under 80 percent of the area median income.⁶³

Because the 30 Million Solar Homes initiative would represent a significant increase in distributed solar deployment, we assigned 12.5 percent of new program funding to year one and applied a constant growth rate (45 percent per year) to ramp up expenditures (and deployment) over the five years of the program.

To allocate funding to and estimate impacts for states and territories, we created a formula that accounted for each area's percentage of the total U.S. population and the percentage of the U.S. population living under the poverty line (with a 75 percent weight on its share of the population living

in poverty and 25 percent weight on its share of the national population). We used a similar formula to allocate funding and impacts to congressional districts.⁶⁴

Program-Specific Methodology and Assumptions

For the indirect impact policies (solar Investment Tax Credit for residential and non-residential projects, SolarAPP, and solar marketplace), ILSR used the solar adoption model described in its report *Utility Distributed Energy Forecasts* to estimate the marginal impact on solar adoption based on the change to solar project net present value.⁶⁵ These ratios (post-policy : pre-policy) were applied to the Wood Mackenzie residential and non-residential solar adoption forecast to calculate the marginal solar megawatt impact for residential and non-residential solar, as appropriate.⁶⁶

For the Investment Tax Credit, the marginal change evaluated was based on a five-year extension of the ITC at 30 percent, with a direct pay option for smaller projects. The new federal investment estimate includes the marginally higher value of a tax credit extension for projects in existing forecasts (30% versus 26%) as well as the full value of the tax credit for projects expected to be built because of the credit restoration. We did not calculate the full value of the tax credit for all 30 million solar homes, as those costs would already be covered by existing policy.

For the SolarAPP, the marginal change was based on a forecast \$1 per Watt reduction in installed cost, but with a slow ramp up to reflect the pace of adoption by permitting municipalities.

For the solar marketplace, the marginal change was based on a 15% reduction in project cost, but covering a fraction of future solar sales.

For the direct impact policies, the table below summarizes the assumptions used in the solar impact calculation.

POLICY /PROGRAM	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	ADMIN COSTS (%)	TOTAL NEW FUNDS FOR DIRECT SOLAR DEPLOYMENT (MILLION \$)	ON-SITE / COMMUNITY SOLAR FUNDING SPLIT (%)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NOTES
Clean Energy Victory Bonds	10,000	5%	47,500	71 / 29	17,600	3,530	Other funds expected to match federal dollars at least 4:1
National Green Bank	5,000	0%	20,000	33 / 67	9,100	1,820	Other funds expected to match federal dollars at least 4:1
CDFI Loan Loss Reserve Seed Funding	500	10%	9,000	50 / 50	3,700	750	Loan loss reserves expected to leverage funds at a 10:1 ratio, a low estimate
CDFI National Loan Loss Reserve	250	10%	2,250	50 / 50	900	190	Loan loss reserves expected to leverage funds at a 10:1 ratio, a low estimate
LIHEAP Transfer	8,600	10%	7,740	0 / 100	4,100	810	
LIHEAP Community Solar Shares	14,950	10%	13,450	0 / 100	7,100	1,420	
LIHEAP REACH	5,000	10%	4,500	0 / 100	2,400	470	
LIHEAP Pay for Success	5,810	10%	7,740	40 / 60	3,400	680	Assumed 65% of projects would succeed and receive payout from federal government
WAP Walkaways	9,640	10%	8,670	90 / 10	2,900	570	
WAP State Plans	4,820	10%	4,340	90 / 10	1,400	290	

POLICY /PROGRAM	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	ADMIN COSTS (%)	TOTAL NEW FUNDS FOR DIRECT SOLAR DEPLOYMENT (MILLION \$)	ON-SITE / COMMUNITY SOLAR FUNDING SPLIT (%)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NOTES
Community Solar Loan Guarantees	1,000	5%	23,750	0 / 100	11,800	2,360	Expected to leverage funds at a 20:1 ration, about half what is typical for federal programs; would support community solar projects of varying sizes/ installation costs
Resilience Grant Competition	7,750	2%	8,170	33 / 67	3,700	740	Other funds expected to provide 10% of project costs
EECBG	1,250	10%	5,630	50 / 50	2,300	470	Other funds expected to match federal dollars at least 4:1
School Solar Grants	17,500	5%	25,980	100 / 0	12,200	2,450	School solar arrays assumed to be approximately 300 kilowatts each with lower installation costs; other funds expected to provide 20-60% of project cost, depending on project
Solar Grant Program for Marginalized Communities	11,250	5%	21,380	50 / 50	8,900	1,780	Other funds expected to match federal dollars at least 1:1
REAP	810	5%	32,790	12 / 88	16,400	3,280	Combination of grants and loan guarantees; grants cover 25% of project costs and loans backed by guarantees cover 75%; loan guarantees expected to leverage additional funds
RESP	90	5%	90	100 / 0	30	5	

POLICY /PROGRAM	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	ADMIN COSTS (%)	TOTAL NEW FUNDS FOR DIRECT SOLAR DEPLOYMENT (MILLION \$)	ON-SITE / COMMUNITY SOLAR FUNDING SPLIT (%)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NOTES
EECLP	0	5%	180	100 / 0	100	10	Policies recommend better use of existing funding but do not include new funding
Section 8 HCV Solar Grants	2,250	10%	2,030	100 / 0	600	120	
Tribal Solar + Storage Grants	200	5%	200	100 / 0	100	10	
SolarAPP	100	0%	-	100 / 0	9,100	1,830	Impact calculated indirectly as described above
Federal Solar Marketplace	50	0%	-	100 / 0	5,900	1,170	Impact calculated indirectly as described above
Solar ITC	29,840	0%	-	16 / 84	27,700	5,530	Impact calculated indirectly as described above; community solar portion of ratio could include non-residential installations other than community solar arrays
Totals	137,000		245,000		151,000	30,000	

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.



30 Million Solar Homes Policies for an Equitable Economic Recovery Built on Climate Protection and Energy Democracy

The following federal policy recommendations aim to create an equitable economic recovery by deploying distributed solar energy to serve the equivalent of 30 million homes — or one in four American households — particularly in marginalized communities. A rapid, widespread scale-up in solar energy would save American families of all colors billions in annual energy costs and create millions of good-paying jobs in both urban and rural communities. We welcome feedback and engagement to discuss these goals and mechanisms.

Last update: June 17, 2021

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Definitions

Low- and moderate-income:

- In general, households with incomes below 80% of Area Median Income (AMI), scaled to the number of people in the household, and communities that include a large proportion of low- and moderate-income households.

Marginalized communities:

- Communities and households that are, but not limited to—
 - ◆ Low- and moderate-income, or are receiving social services such as Medicaid, nutrition, and housing assistance;
 - ◆ Environmental justice communities, as identified through an appropriate environmental justice screening tool(s), such as the Biden administration’s proposed Climate and Environmental Justice Screening Tool, that account for factors including high pollution levels, large minority populations, and high energy burdens; and/or
 - ◆ “Solar deserts,” where there is no or low deployment of distributed solar energy.

Equitable community solar:

- Community solar programs and projects in which—
 - ◆ Community solar refers to an on- or off-site solar project that interconnects with an electric utility’s distribution system, serves multiple energy users within the utility, and provides direct economic benefits to those users, such as through virtual net energy metering (VNEM);
 - ◆ Utility end users and third parties are allowed to own community solar installations, on equal footing with utility-owned installations, whereby projects are compensated for electricity production through VNEM; and
 - ◆ Programs focus on benefitting marginalized communities and prioritizing community governance and ownership.

Make solar tax incentives more equitable

The Consolidated Appropriations Act, 2021, which was signed into law in December 2020, extended the Solar Investment Tax Credit (ITC) at its current level of 26% through 2022. However, changes must still be made to ensure it can further benefit low- and moderate- income households, people with low tax liability, and nonprofit institutions.

- Restore a cash grant/direct pay option for the residential (Section 25D) and commercial (Section 48) Solar ITC for projects under 2 megawatts, allow immediate credit refundability, and explicitly confirm eligibility for community solar ownership shares.
- Restore the residential (Section 25D) and commercial (Section 48) Solar ITC to 30%, and extend the cash grant/tax credit through the next 10 years, including a gradual sunset period.
- Clarify that 501(c) organizations and other non-taxable entities, such as local governments and rural electric cooperatives, are eligible for a cash grant/direct pay version of the Solar ITC.
- Create three additional tax credits, payable as a cash grant/direct pay option if it meets the conditions above, which can be combined up to a maximum total solar tax credit/cash grant of 45%, for the following types of projects:
 - ◆ An additional 10% tax credit for commercial (Section 48) solar projects installed by entities that provide Davis-Bacon prevailing wages and benefits,
 - ◆ An additional 10% tax credit for residential (Section 25D) and commercial (Section 48) solar projects primarily serving marginalized communities, and
 - ◆ An additional 10% tax credit for residential (Section 25D) and commercial (Section 48) solar projects that reduce community vulnerability to disaster-related power outages through distributed solar plus storage.

Provide more reliable low-income energy assistance through solar energy

The federal government spends billions of dollars every year to help families pay their energy costs and still only serves less than a fifth of the eligible population. By funding rooftop and community solar access for these households, the government could provide long-term financial relief and reduce the need for annual energy bill assistance. Increasing federal energy assistance funding overall while using funding that isn't dedicated to direct bill assistance for solar innovations would ensure the long term integrity and solvency of energy assistance.

- Fully fund the Department of Health and Human Services's (DHHS's) Low-Income Home Energy Assistance Program (LIHEAP) to serve all eligible households at an approximate cost of \$150 billion total over the next five years, and provide multi-year LIHEAP funding to give grantees consistency.
- Expand income eligibility for LIHEAP to the higher of 200% of the Federal Poverty Level (FPL) or 80% of State Median Income (SMI).

- Create a national solar carveout in the LIHEAP Transfer mechanism (EAP-WX)¹ by requiring 50% of LIHEAP Transfer funds be used by grantees and service providers to deploy rooftop solar that will be owned by eligible households and/or purchase community solar subscriptions for eligible households.
- Renew funding for the LIHEAP Residential Energy Assistance Challenge (REACH) competitive grant program for innovative projects that help low-income households increase energy self-sufficiency through solar energy, with at least \$5 billion total available over the next five years.
- Clarify that providing rooftop solar and annually-transferable community solar shares/subscriptions is an eligible use of LIHEAP funds by amending (42 U.S.C. 8628) Section 2609 as follows:
 - ◆ “Grants made under this title may not be used by the State, or by any other person with which the State makes arrangements to carry out the purposes of this title, for the purchase or improvement of land (**except for the construction of renewable energy systems**), or the purchase, construction, or permanent improvement (other than ~~low-cost~~ residential weatherization or other energy-related home repairs **or the construction of onsite or offsite renewable energy systems**), of any building or other facility.”
- Direct DHHS to allow LIHEAP service providers to develop community solar projects that provide eligible households “bill assistance” via an annually transferable community solar share that aligns with the household’s annual energy assistance needs. Provide guidance and technical assistance to service providers to implement community solar projects.
- Use Pay for Success financial tools/Social Impact Bonds² to fund innovative projects that aim to improve the integration of solar energy into energy bill assistance and ultimately result in lower energy burdens.
 - ◆ Leverage the U.S. Treasury’s Social Impact Partnerships to Pay for Results Act (SIPRA) to finance the deployment of community solar assets owned and operated by Community Action Agencies (CAAs) for the specific purpose of delivering bill assistance to LIHEAP recipients.
- Use demographic data concerning race and homeownership status collected by the Low-Income Home Energy Assistance Program and the Weatherization Assistance Program to conduct an annual equity report that maps disparities in services and recommends tangible strategies for improvement.
 - ◆ For example, the disparities mapping could analyze the percent of eligible customers enrolled in a LIHEAP or WAP benefit program, disaggregated by all customers groups (e.g., income level, frontline community, senior citizens,

¹ LIHEAP Transfer funds are a subset of the LIHEAP block grant that can be spent on efforts to increase low-income households’ energy self-sufficiency, such as through referral services and weatherization, instead of on direct bill assistance. This would NOT take away money that is used to directly pay energy bills.

² [See more.](#)

medically vulnerable, rural/urban, renter/homeowner, race, gender, ability/disability, language spoken, etc.).

- Support greater Tribal management of WAP and LIHEAP programs by providing more technical assistance, and increased funding for Tribes, to increase Tribal sovereignty over program funds and other services as determined by Tribes.
 - ◆ Direct DHHS to inform all recognized tribes that there is a path to managing your own LIHEAP without the state as an intermediary and create a grant program to support those tribes that would like to manage LIHEAP directly with DHHS.

Supplement low-income weatherization assistance with solar energy

Federal weatherization assistance increases low-income households' energy self-sufficiency, but the program is currently underfunded. Combining efficiency with rooftop solar would further reduce the energy burden on low-income households in the long term.

- Increase funding for the Department of Energy's (DOE's) low-income Weatherization Assistance Program (WAP) to provide approximately \$50 billion total over the next five years.
- Expand income eligibility for WAP to the higher of 200% FPL or 80% SMI.
- Enable greater use of WAP funds to deploy rooftop solar by providing more federal guidance and assistance on incorporating solar into grantees' annual weatherization plans.
- Eliminate the overall household spending limit for WAP, to ensure all cost effective measures are installed, and eliminate the household spending limit on renewable energy measures.
- Prioritize households with high energy burdens who are turned down for weatherization improvements (i.e., "walkaway" deferral) for rooftop or community solar provided through WAP, LIHEAP, or other programs.
 - ◆ Also, streamline resources for structural improvements of WAP "walkaway" households to provide improved housing quality (and not just bill discounts).

Fund solar projects in marginalized communities, rural areas, and Tribal lands

Low- and moderate-income households and BIPOC communities can struggle to finance solar energy despite frequently standing to gain the most from the bill savings. Rural households and farms face similar issues. Increased federal funding could help deploy solar in these communities that have typically lacked access, bringing much needed economic benefits and creating spillover effects.

- Create a grant program at the Department of Energy for nonprofits; local, state, tribal, and territorial governments; and solar developers to install on-site solar (including any necessary building improvements) and equitable community solar systems to benefit residents of marginalized communities.

- ◆ Prioritize projects that provide the most financial benefit to households and support community employment or workforce training.
- ◆ Eligible community solar projects must be equitable and include community input in the project design and the distribution of benefits, be under or equal to 2 MW in scale, and dedicate at least 50% of capacity to serving residents of marginalized communities.
- ◆ Make at least \$12.5 billion available in total over the next five years.
- Increase baseline funding for the US Department of Agriculture's (USDA's) Rural Energy for America Program (REAP), which currently provides grants and loan guarantees to rural small businesses and agricultural producers, to at least \$1.25 billion over five years.
 - ◆ Expand program eligibility to nonprofits and residences in rural areas.
 - ◆ Lower the eligibility threshold for agricultural producers to at least 25% (from 50%) of gross income from on-farm operations. Alternatively, tie eligibility to filing farm property taxes without any income requirement.
 - ◆ Prohibit REAP funding eligibility for concentrated animal feeding operation biogas/biomass or incineration projects, or lower the maximum size caps for such operations (e.g., 1k animal units maximum).
 - ◆ Create a REAP Tribal carveout by dedicating 35% percent of program funding and financing to small businesses, farms, nonprofits, and residences on Tribal lands. Reserve 50% of remaining funds for projects in other marginalized communities
 - ◆ Provide additional technical assistance for REAP applicants, to help prepare applications and implement projects.
- Create a \$400 million grant program at the Department of the Interior that provides technical assistance for and deployment of off-grid solar and storage for primary residences, businesses, and community-benefitting buildings in tribal communities and areas with no grid-connectivity options.
 - ◆ Program design and operation should abide by principles of tribal sovereignty and Free, Prior, and Informed consent.

Bring the benefits of solar energy to affordable housing residents

Residents of affordable and public housing stand to benefit greatly from reduced energy costs through solar energy, but they face barriers because they are typically renters and because of how housing subsidies and utility allowances are calculated.

- Direct the Department of Housing and Urban Development (HUD) to issue national guidance that enables residents of federally subsidized housing to pocket the savings from energy efficiency, rooftop solar, and community solar bill credits.
 - ◆ Similar to HUD's 2019 guidance for California's Solar on Multifamily Affordable Housing (SOMAH) program³, the guidance would direct housing providers to

³ See [HUD 2019 memo](#) re: Treatment of Solar Virtual Net Energy Metering Credits on Tenant Utility Bills.

- exclude Virtual Net Energy Metering credits from income and utility allowance calculations for residents of federally subsidized housing who receive a bill credit from an on- or off-site community solar project, where the credit is attached to the property/unit and not related to electricity consumption.
- ◆ Similarly, amend the utility allowance credit such that savings from efficiency and rooftop solar improvements to affordable housing can result in monthly savings for residents.
- Relaunch HUD’s Renew300 initiative, which provided technical assistance and training to affordable housing providers to install solar energy.
- ◆ Conduct an assessment on the status of past pledges from providers, and establish a new target for deploying solar energy on federally assisted housing to serve individual households as well as housing common areas and centrally metered utilities.
 - ◆ Coordinate the initiative with the National Community Solar Partnership at the Department of Energy.
- Replace HUD’s 5-year cap on solar Power Purchase Agreements (PPAs) for Public Housing Agencies (PHAs) with a 20-year cap for solar projects that will save money on energy costs.
- ◆ Provide guidance to PHAs on assessing the cost savings potential of solar PPAs.
- Create a competitive grant program at HUD with at least \$2.5 billion available in total over the next five years for public housing authorities to establish local grant programs for building owners who participate in the Section 8 voucher program to install solar energy (including necessary building upgrades and repairs), and require energy savings be passed to residents.
- ◆ Participating landlords would be prohibited from passing the cost of installation to tenants, and building owners who receive a fully subsidized solar system could be subject to a rent freeze or requirements to increase the number of units rented to voucher holders.
 - ◆ Public housing authority grantees should prioritize funding projects that are located in marginalized communities, serve higher proportions of voucher holders, and provide the most benefit to voucher holders.
- Require entities that allocate Low-Income Housing Tax Credits to prioritize projects (both new construction and rehabilitation) with on-site solar energy that provides a direct financial benefit to residents, such as through VNEM, in addition to other targeted characteristics and priorities.
- All federal level clean energy initiatives must be tied to protections against green gentrification to ensure solarization does not displace current residents.

Fund solar for struggling schools

Thriving schools make our communities stronger. However, underfunded schools aren’t able to afford the upfront costs of energy-saving solar systems. Federal grants are essential to help these community anchors access solar.

- Create a competitive federal grant program at the DOE with at least \$17.5 billion available in total over the next five years for schools that install on-site solar and reinvest the energy savings into school operations, teacher salaries, and/or classroom materials.
 - ◆ Prioritize K-12 schools, but make higher education facilities that serve under-resourced students eligible for any remaining funds. Further prioritize schools that have high energy burdens, and reserve at least 75% of the grant funds for schools that serve marginalized communities.
 - ◆ Grants start at 40% of the system cost and increase to 80% for schools that serve marginalized communities.

Increase access to community solar nationwide

Many Americans live in homes that aren't suitable for rooftop solar, including rental apartments and manufactured housing. Community solar can help all families access the benefits of solar energy, but legal and financial barriers remain, especially for locally-owned community solar projects and projects that serve low- and moderate-income communities.

- Ensure all households can access the benefits of community solar, including in states currently lacking enabling legislation, by amending the Public Utilities Regulatory Policies Act (PURPA) to require all state utility regulators and non-regulated utilities to develop rules for establishing equitable community solar programs at all electric utilities.
 - ◆ Rules must include provisions for making data on project characteristics — possibly including information on participant demographics (residential, commercial, or community organization; income class; race; EJ designation), owners and ownership structure, compensation rate, bill savings, availability of on-bill financing, developer, utility, and siting — publicly available, to assess program success and inform improved equitable policy and project design.
- Create a new DOE financing program to provide loans and loan guarantees to community-owned, equitable community solar projects up to 2 MW. Provide at least \$200 million total over the next five years in forgivable loans for pre-development activities, including site screening and capital stack formation (with loans worth 20% of total project cost available for projects up to 100 kW, and loans worth 10% of total project cost available for projects over 100 kW and up to 2 MW). Provide at least \$1 billion total over the next five years to DOE for loan guarantees for installation costs to lower the cost of capital. Eligible projects must:
 - ◆ Be an equitable community solar project,
 - ◆ Be under or equal to 2 MW in scale,
 - ◆ And dedicate at least 75% of capacity to serving low- and moderate-income households and households in marginalized communities.

Catalyze private investment in equitable solar energy

Financing programs and other efforts to expand solar energy and other clean energy technologies in marginalized communities often struggle with insufficient or expensive capital.

Federal actions can increase access to private capital for these projects and allow all Americans to invest in our nation's equitable climate and economic recovery.

- Authorize at least \$50 billion in Clean Energy Victory Bonds⁴, modeled on World War II victory bonds, to finance clean energy investments and programs at the federal, state, tribal, territorial, and local level.
 - ◆ Reserve a portion of the revenue from Clean Energy Victory Bonds for financing distributed rooftop solar and community solar projects up to 5 MW. Reserve at least 75% of that carveout for distributed solar projects that are owned by, reduce the energy bills of, or otherwise benefit members of marginalized communities. Prioritize remaining funds for investments that further benefit members of marginalized communities.
- Create a National Loan Loss Reserve at the Department of the Treasury with at least \$1 billion to de-risk Community Development Financial Institution (CDFI) investments in an equitable clean energy transition, including on-bill financing programs for clean energy and energy efficiency improvements.
 - ◆ Create a set of conditions for CDFIs that want to tap into the National Loan Loss Reserve fund, including due diligence standards for lending activity, eligible CDFI programs, level of risk tolerated in lending portfolios, and administrative costs at the CDFI and national level.
 - ◆ Consult with the DOE for guidance and best practices in establishing loan loss reserves.
- Create a competitive grant program at the Department of Treasury with at least \$500 million available in total over the next five years to provide seed funding to CDFIs to establish their own local loan loss reserves to support solar financing programs, including on-bill financing programs, in marginalized communities.
 - ◆ Provide grants worth up to 50% of initial costs.
 - ◆ Consult with the DOE for guidance and best practices in establishing loan loss reserves and establishing grant programs.
- Establish a national green bank as described by S.283 with the following modifications:
 - ◆ Expand SEC. 5245E. START-UP DIVISION to include initial capitalization for newly established green banks at the state and local level through grant funding, loan guarantees, fund matching.
 - ◆ Remove SEC. 5245G. CASH FOR CARBON PROGRAM.
 - ◆ Modify SEC. 52451. BOARD OF DIRECTORS to reserve at least one seat for a member with expertise regarding investment and program implementation that promotes equity and remediates past and current harms. Further modify provisions under (j) ADVISORY COMMITTEE to establish that there be no fewer than two representatives from indigenous and First Nation communities.
 - ◆ Increase the percentage of funding that should benefit marginalized communities to 75%.

⁴ See [Green America](#) or [HR 4041](#) for more information.

- ◆ Add provisions for on-bill Pay As You Save (PAYS) financing to expand access to community-owned installations for marginalized communities.

Expand inclusive financing for solar and energy efficiency

Conventional loans for home solar and energy efficiency improvements are often inaccessible to renters, low- and moderate-income households, and people without high credit scores, who are frequently burdened with high energy costs. Inclusive financing programs that are structured to source repayment from energy savings and tie it to the property instead of the person can break through these barriers.

- Improve participation in USDA programs, such as the Rural Energy Savings Program (RESP) and Energy Efficiency and Conservation Loan Program (EECLP), that provide capital for solar and efficiency inclusive financing projects by increasing promotion, outreach, and assistance to potential borrowers.
 - ◆ Require USDA to thoroughly reform the program and eliminate barriers to participation.
 - ◆ Extend the maximum loan repayment term from 10 years to at least 15 years for households and small businesses that receive financing for renewable energy and energy efficiency improvements through RESP-funded programs. (Financed improvements must have a positive return on investment.)
 - ◆ Increase funding for RESP to at least \$150 million annually.
- Issue federal guidelines encouraging clean energy financing programs to offer inclusive financing alternatives to interest-bearing loans to accommodate religious practices that forbid collecting interest.

Use block grants to local and state governments for solar and efficiency

Local, state, tribal, and territorial governments can leverage block grants to provide community financing for solar energy projects. Greater technical assistance and direction from the federal government can help grantees overcome knowledge and experience barriers in the use of funds to deploy solar in marginalized communities.

- Reauthorize the DOE's Energy Efficiency and Conservation Block Grant program with at least \$12.5 billion available over the next five years.
 - ◆ Expand the eligible use of funds to include deploying rooftop and community solar for households, small businesses, and community institutions in marginalized communities, in addition to funding solar financing programs.
 - ◆ Provide technical assistance and capacity building for block grant recipients using funds for solar programs.
- Provide technical assistance and guidance to HUD Community Development Block Grant (CDBG) and CDBG Disaster Recovery recipients to help establish local loan loss reserves (possibly in partnership with a local Community Development Financial

Institution) to support financing programs for solar energy that are accessible to members of marginalized communities.

- Develop a Section 108 Renewable Energy Loan Guarantee program to promote the use of CDBG Section 108 loan guarantees to finance solar energy development in marginalized communities, including community solar installations and local solar financing programs. As part of the initiative, create an accelerator program for local economic development offices and officials to incorporate solar energy into economic development and technical assistance on the Section 108 Renewable Energy Loan Guarantee program.

Streamline solar deployment and reduce unnecessary barriers

Families and small business owners can face unclear costs, long permitting times, and discriminatory rules when adopting solar energy, but federal actions can streamline the adoption process and make it fairer for more Americans.

- Allocate at least \$10 million per year to the Department of Energy to provide technical assistance and coordination to independent businesses and nonprofits to provide a national solar marketplace for individual rooftop solar and storage systems. The marketplace should allow residents and small businesses to compare multiple quotes from solar installers, in order to reduce information asymmetry and make solar pricing more competitive.
- Direct DOE to provide technical assistance to local governments for adoption of the National Renewable Energy Laboratory’s (NREL’s) SolarAPP (Automated Permit Processing)⁵ to streamline permitting for on-site solar systems and reduce wait time.
- Direct HUD to issue regulations prohibiting homeowners associations from restricting the ability of homeowners to deploy solar energy on their property.
- Require all utilities with distributed solar capacity exceeding 2 percent of peak demand and seeking market-based rate authority — regulated by the Federal Energy Regulatory Commission (FERC) — to:
 - ◆ Develop and implement a “Integration Capacity Analyses” with a published map at least as detailed and accessible as the Southern California Edison version, as required for California investor-owned utilities (but updated monthly). The map should, at a minimum, include the following elements:
 - No login to view the map
 - Filter view by available capacity
 - Open API
 - Show substation location
 - Includes analysis of new generation and new load (e.g. electric vehicles, building electrification)
 - ◆ Use the new analysis and map to replace at least a portion of the utility’s existing distributed solar interconnection process within 18 months, as required in

⁵ See [NREL SolarAPP](#) for more information.

- California's recently updated Rule 21⁶. It should also allow project developers to amend their operating schedules to meet grid constraints.
- ◆ Develop and publicly publish a value of solar calculation using the required elements and modified methodology from the state of Minnesota⁷ (and including additional factors, as merited⁸) within 18 months.
- Amend FERC Order 1000 to require utilities to issue a competitive solicitation of non-wires alternatives for each regional transmission project, detailing the energy, capacity, and other necessary project characteristics.
- ◆ Benefits of this policy include:⁹
 - Competitive pressure to reduce transmission costs, thus reducing wholesale power costs
 - Prioritization and quantification of consumer benefits
 - Market maturity for non-transmission alternatives (NTAs) that reduces their cost (and making their competitive pressure even stronger); alignment with 30 million solar homes development
 - Improve transmission planning process to routinely include technology-blind solutions
 - Improve system reliability
 - Lower transmission congestion and locational marginal prices
 - More jobs from distributed energy resources
 - ◆ Define NTAs that are used to supplant regional transmission projects as transmission for the purposes of the Federal Power Act, so that regional transmission organizations can regionally allocate costs.
- To preserve the right of customers to self-generate electricity, all utilities seeking or approved for market-based rate authority (and with distributed solar capacity of less than 15 percent of peak demand) must allow customers to receive credit for their onsite power generation with the following provisions:
- ◆ All generation less than or equal to a customer's monthly consumption must be credited at no less than the retail electricity rate.
 - ◆ Generation credits in excess of consumption are rolled over month-to-month for at least one year.
 - ◆ Net excess generation produced in excess of 120% of annual consumption receives compensation no less than the wholesale energy rate.
 - ◆ *Nothing in these provisions preempts policies with higher compensation, longer credit rollover, or retail rate compensation for higher percentages of onsite consumption.*
- Prohibit the Tennessee Valley Authority and federal Power Marketing Administrations from creating rate structures that hinder net energy metering or allow solar specific fees.

⁶ See [Solar Builder](#) for more information.

⁷ See [MN statute 216B.164](#) and [MN Department of Commerce Value of Solar Methodology](#).

⁸ See [Environment America](#) for more information.

⁹ See [Scott Hempling Law](#) for more information.

- Direct NREL to provide leadership and support to utilities to create interconnection methods suitable for solar-paired storage on multimeter, multifamily housing with the flexibility to connect on either the utility side of the meter, to provide grid services, or the customer side of the meter, for back-up and resiliency, or both.
 - ◆ Include allowances for larger sizing of solar systems to provide grid services while maintaining adequate back-up power for on-site use, as well as mechanisms to ensure the systems are not unfairly used to store and resell energy from the utility grid.

Improve disaster resiliency by deploying solar energy and energy storage

Coordinating federal disaster recovery and mitigation aid with other federal efforts to deploy solar energy and energy storage can make communities more resilient to disaster-related power disruptions.

- Direct the Federal Emergency Management Agency (FEMA) to coordinate with other federal agencies when providing Individual Assistance, to make building owners aware of federal opportunities to fund and finance solar installations and energy storage.
- Direct FEMA to provide increased guidance to states on including solar and energy storage in hazard mitigation plans.
- Create national resilience grant competition through DOE for projects that reduce community vulnerability to disaster-related power outages through distributed solar plus storage in marginalized communities, with at least \$15.5 billion available over five years.
 - ◆ Model the program after the one proposed by H.R. 448 Energy Resilient Communities Act¹⁰, with all funds reserved for use in marginalized communities.
 - ◆ Funds can be used to install solar and storage technologies on community anchor institutions, essential businesses, and residential buildings.
 - ◆ Consult with HUD for guidance and best practices on running a national disaster resilience competition.

Support workforce development for underrepresented communities to enable rapid, large-scale solar deployment

Solar energy is a growing part of the American economy, but Black and female workers remain underrepresented in the industry¹¹ — investment in workforce training for these and other groups is necessary to ensure both greater equity and massive growth of distributed solar energy.

- Provide at least \$100 million annually for the next five years to the Department of Energy's Office of Solar Energy Technology (SETO) for workforce development programs that help underrepresented groups gain employment and start businesses in the solar energy industry.

¹⁰ See [H.R. 8628](#)

¹¹ See the [2020 U.S. Energy and Employment Report](#) and the [U.S. Solar Industry Diversity Study 2019](#)

- ◆ Underrepresented groups include, but are not limited to, BIPOC, women, transitioning energy workers, formerly incarcerated people, LGBTQ+ individuals, and members of environmental justice communities.
 - ◆ Workforce development should be targeted to a variety of careers in the solar energy industry, including, but not limited to, in installation, supply chain manufacturing, research and development, engineering, business administration, marketing, and other related fields
 - ◆ Workforce programs should include job-training (including on-the-job training), mid-career professional development, and support for the establishment of new small businesses and worker cooperatives, among other services.
 - ◆ Provide compensation to program participants to ensure accessibility.
 - ◆ Partner with trade and community colleges, nonprofit solar developers, and solar businesses to design and implement programs.
 - ◆ Build off of lessons learned and partnerships developed in prior successful programs, such as the Solar Training and Education for Professionals (STEP) program and the Solar Training Network.
- Require that recipients of federal funding prioritize hiring businesses owned by BIPOC, women, and gender minorities; businesses located in marginalized communities; and/or businesses that employ local residents for any solar projects funded wholly or in part through the 30 Million Solar Homes initiative.

Make 30 Million Solar Homes federal programs accountable to communities

The United States has too often engaged in discriminatory policies and practices that harm BIPOC and low- and moderate-income communities. To ensure the 30 Million Solar Homes initiative prioritizes the marginalized communities that will benefit most, the federal government must provide consistent transparency so advocates can hold it accountable to its goals.

- Set an official goal of powering the equivalent of 30 million new solar homes across all federal agencies, with at least 75% of total federal investments benefiting members of marginalized communities.
- Create a federal interagency partnership called the 30 Million Solar Homes initiative¹², to coordinate efforts across various agencies to rapidly increase distributed solar deployment, especially in marginalized communities, and to maintain high standards of accountability and transparency.
- Require that all federal programs included in the 30 Million Solar Homes initiative track and publicly report the demographic data and other related metrics of funded projects, including impacts on local economic development and gentrification, to ensure marginalized communities are being equitably served.
- Evaluate performance of programs funded under the 30 Million Solar Homes proposal, adjusting programs and reallocating funding as necessary.

¹² See the [Clean Energy Savings for All Initiative](#) as an example.

- ◆ Create a periodic evaluation process that includes robust input from marginalized communities.
 - ◆ Adjust program rules and practices as recommended to increase participation and effectiveness in marginalized communities.
 - ◆ Reallocate funds from programs that are underutilized or not adequately serving marginalized communities to programs that have greater demand and unmet need and are more successfully serving target populations.
- Provide \$100 million over five years to the Department of Energy to support education and outreach on the benefits of solar energy, federal funding opportunities for solar, and the importance of an equitable transition to clean energy.
- ◆ Materials and engagement should be available in multiple languages, including English and Spanish.
 - ◆ A portion of the funds should be reserved for a competitive grant program to support local governments and community organizations conducting relevant education and outreach activities for marginalized communities.

Aligned policies for further development

The policies above focus on ways the federal government can use distributed solar to quickly respond to the economic, racial, and environmental crises exacerbated by the pandemic, and they prioritize direct deployment of solar energy in impacted communities. However, these policies alone will not address all of the disparities and inadequacies in our current energy system. The 30 Million Solar Homes coalition broadly supports a wide range of policies that advance environmental justice principles, modernize the electric grid, ensure appropriate siting of solar installations, support a just transition, and otherwise make our energy system cleaner and more equitable. The following policy recommendations are a selection of other opportunities to build greater energy justice in our communities beyond this initiative.

- Create and adequately fund a new office, agency, or administration responsible for increasing energy equity and access to distributed solar energy; coordinating efforts across federal, state, tribal, territorial, and local agencies and governments; partnering with community organizations for implementation and feedback; leading education and outreach efforts; and developing transformative energy justice policies.
 - ◆ This new entity could conduct an analysis of the Solar ITC and explore the potential for more equitable mechanisms to replace it over the long term.
- Expand funding for deployment and workforce development at the Department of Energy related to clean energy technologies, including energy efficiency, storage, and precious metals recycling.
- Mandate that utilities baseline, track, and improve disparities in participation for marginalized communities in utility-run clean energy and energy efficiency programs.
- Allocate \$2 million to the Department of Energy to do a joint study with the HUD on strategies to coordinate federal, state, tribal, territorial, and local programs to address structural and home repair barriers to on-site solar installations, due by July 1, 2022.

Appendix C-1

Impact by Policy

POLICY/PROGRAM	DEPT.	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Clean Energy Victory Bonds	DOT	10,000	17,600	3,530	2,650	8,100	3,520	229	22,320	9,710
National Green Bank	DOT	5,000	9,100	1,820	1,360	4,170	1,810	92	11,490	5,000
CDFI Loan Loss Reserve Seed Funding	DOT	500	3,700	750	750	1,720	750	42	4,750	2,060
CDFI National Loan Loss Reserve	DOT	250	900	190	190	430	190	11	1,190	520
Solar ITC	DOT	29,840	27,700	5,530	2,270	12,700	5,520	393	35,020	15,230
LIHEAP Transfer	DHHS	8,600	4,100	810	810	1,770	770	34	5,000	2,170
LIHEAP Community Solar Shares	DHHS	14,950	7,100	1,420	1,420	3,100	1,350	59	8,450	3,680
LIHEAP REACH	DHHS	5,000	2,400	470	470	1,090	470	20	3,000	1,300
LIHEAP Pay for Success Financing	DHHS	5,810	3,400	680	680	1,560	680	36	4,300	1,870
WAP Walkaways	DOE	9,640	2,900	570	570	1,220	530	43	3,690	1,610
WAP Grantee Annual Plans	DOE	4,820	1,400	290	290	610	260	21	1,850	800
Community Solar Loan Guarantees	DOE	1,000	11,800	2,360	1,770	5,420	2,360	99	14,960	6,510
Resilience Grant Competition	DOE	7,750	3,700	740	740	1,700	740	38	4,690	2,040

POLICY/PROGRAM	DEPT.	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
EECBG	DOE	1,250	2,300	470	150	1,080	470	26	2,970	1,290
School Solar Grants	DOE	17,500	12,200	2,450	1,680	5,620	2,440	119	15,500	6,740
Solar Grant Program for Marginalized Communities	DOE	11,250	8,900	1,780	1,220	4,090	1,780	101	11,270	4,900
SolarAPP	DOE	100	9,100	1,830	380	4,190	1,820	149	11,560	5,030
Federal Solar Marketplace	DOE	50	5,900	1,170	250	2,690	1,170	95	7,410	3,220
REAP	USDA	810	16,400	3,280	2,210	7,520	3,270	147	20,750	9,030
RESP	USDA	90	30	5	1	10	5	0.4	30	20
EECLP	USDA	-	100	10	2	30	10	1	70	30
Section 8/HCV Solar Grants	HUD	2,250	600	120	120	290	120	10	790	340
Tribal Solar + Storage Grants	DOI	200	100	10	10	30	10	1	100	40
Totals		137,000	151,000	30,000	20,000	69,000	30,000	1,770	191,000	83,000

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

Appendix C-2

Impact by Years

	TOTAL YEARS 1-5	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	ANNUAL AFTER YEAR 5
New Federal Investment in Local Solar (billion \$)	137	11	17	24	35	50	-
New Local Solar (GW)	151	13	18	26	38	56	-
New Solar Homes (millions)	30	3	4	5	8	11	-
New Solar Homes in Marginalized Communities (thousands)	20	2	2	3	5	7	-
Bill Savings (billion \$)	69	3	4	5	8	11	30
New Solar Jobs (thousand job-years)	1,770	150	210	310	450	650	-
Emissions Reductions (million metric tons CO₂e)	191	7	10	15	21	31	83

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

Appendix C-3

Total Impacts by State

STATE/TERRITORY	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Alaska	380	300	70	50	150	60	4	310	130
Alabama	2,130	2,500	500	330	1,040	450	30	2,980	1,300
Arkansas	1,440	1,600	330	210	500	220	19	2,720	1,180
American Samoa	80	100	20	10	120	50	1	270	120
Arizona	2,660	3,300	660	420	1,550	670	39	5,220	2,270
California	13,000	16,200	3,240	2,070	13,070	5,680	190	10,670	4,640
Colorado	2,130	2,200	440	300	1,010	440	26	4,980	2,170
Connecticut	1,380	1,400	290	190	940	410	17	950	410
Dist. of Columbia	330	300	70	50	140	60	4	410	180
Delaware	380	400	80	60	160	70	5	430	190
Florida	7,200	9,200	1,840	1,170	3,800	1,650	108	12,910	5,620
Georgia	3,810	4,700	950	600	1,720	750	56	6,240	2,710
Guam	100	100	20	20	150	70	1	340	150
Hawaii	370	500	100	60	500	220	6	1,160	500

Appendix C-3 (Continued)

Total Impacts by State

STATE/TERRITORY	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Iowa	1,550	1,400	290	200	510	220	17	1,820	790
Idaho	770	800	160	110	270	120	9	250	110
Illinois	5,270	5,600	1,110	750	2,150	940	65	5,730	2,490
Indiana	2,910	3,000	600	400	1,160	500	35	6,970	3,030
Kansas	1,230	1,300	260	170	520	230	15	1,770	770
Kentucky	2,270	2,500	490	330	820	360	29	6,260	2,720
Louisiana	2,350	2,800	560	360	920	400	33	3,570	1,550
Massachusetts	2,850	2,800	550	380	1,900	820	32	2,980	1,300
Maryland	2,090	2,200	440	290	910	400	26	2,400	1,040
Maine	840	700	140	100	350	150	8	200	90
Michigan	5,010	4,900	980	670	2,560	1,110	58	6,920	3,010
Minnesota	2,520	2,300	450	320	900	390	27	2,870	1,250
Missouri	2,740	2,900	580	390	900	390	34	6,920	3,010
Mississippi	1,600	1,900	370	240	680	300	22	2,380	1,040

Appendix C-3 (Continued)

Total Impacts by State

STATE/TERRITORY	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Montana	660	600	110	80	190	80	7	990	430
North Carolina	4,220	4,900	980	640	1,700	740	57	5,640	2,450
North Dakota	550	400	80	60	120	50	5	850	370
Nebraska	830	800	160	110	260	110	9	1,570	680
New Hampshire	500	500	90	60	270	120	5	160	70
New Jersey	3,280	3,400	680	460	1,720	750	39	2,620	1,140
New Mexico	1,160	1,300	250	170	670	290	15	3,210	1,400
Northern Mariana Is.	70	100	20	10	130	60	1	240	100
Nevada	1,040	1,300	260	170	610	270	15	1,770	770
New York	9,440	9,600	1,920	1,300	3,950	1,720	111	3,690	1,610
Ohio	5,510	5,700	1,130	760	2,040	890	66	9,650	4,200
Oklahoma	1,740	2,000	400	260	630	270	24	2,350	1,020
Oregon	1,620	1,800	360	240	520	230	21	860	370
Pennsylvania	5,990	6,000	1,190	810	2,310	1,000	69	6,040	2,630

Appendix C-3 (Continued)

Total Impacts by State

STATE/TERRITORY	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Puerto Rico	2,880	3,800	760	480	2,620	1,140	45	10,510	4,570
Rhode Island	450	500	90	60	340	150	5	560	240
South Carolina	2,070	2,400	490	320	990	430	28	2,000	870
South Dakota	460	400	80	60	160	70	5	310	140
Tennessee	2,900	3,300	660	430	1,090	470	38	3,340	1,450
Texas	10,620	13,200	2,650	1,690	5,160	2,240	155	18,700	8,130
Utah	1,070	1,200	230	150	410	180	14	2,950	1,280
Virginia	3,040	3,300	660	440	1,230	530	38	3,200	1,390
Virgin Islands	70	100	10	10	120	50	1	200	90
Vermont	320	300	60	40	150	60	3	10	10
Washington	2,660	2,900	580	390	760	330	34	1,040	450
Wisconsin	2,800	2,600	520	360	1,150	500	30	4,540	1,980
West Virginia	1,040	1,000	210	140	340	150	12	2,670	1,160
Wyoming	290	300	50	40	100	40	3	860	370

*Only the impacts of policies included in the analysis are listed here. For all policy recommendations, see Appendix B.

**Rounded figures may not sum correctly.

Appendix C-4

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist.	Alaska	380	300	70	50	150	60	4	310	130
AK TOTALS	Alaska	380	300	70	50	150	60	4	310	130
Cong. Dist. 1	Alabama	310	400	70	50	150	70	4	440	190
Cong. Dist. 2	Alabama	300	400	70	50	150	60	4	430	190
Cong. Dist. 3	Alabama	300	400	70	50	150	60	4	420	180
Cong. Dist. 4	Alabama	300	400	70	50	150	60	4	430	190
Cong. Dist. 5	Alabama	280	300	70	40	140	60	4	400	170
Cong. Dist. 6	Alabama	220	300	50	30	110	50	3	310	130
Cong. Dist. 7	Alabama	400	500	90	60	200	90	6	560	240
AL TOTALS	Alabama	2,130	2,500	500	330	1,040	450	30	2,980	1,300
Cong. Dist. 1	Arkansas	370	400	80	60	130	60	5	700	300
Cong. Dist. 2	Arkansas	340	400	80	50	120	50	5	640	280
Cong. Dist. 3	Arkansas	370	400	80	50	130	60	5	690	300
Cong. Dist. 4	Arkansas	360	400	80	50	130	50	5	680	290
AR TOTALS	Arkansas	1,440	1,600	330	210	500	220	19	2,720	1,180
Cong. Dist.	American Samoa	80	100	20	10	120	50	1	270	120
AS TOTALS	American Samoa	80	100	20	10	120	50	1	270	120
Cong. Dist. 1	Arizona	350	400	90	60	200	90	5	690	300

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 2	Arizona	260	300	60	40	150	70	4	510	220
Cong. Dist. 3	Arizona	340	400	80	50	200	90	5	670	290
Cong. Dist. 4	Arizona	280	300	70	40	160	70	4	540	240
Cong. Dist. 5	Arizona	190	200	50	30	110	50	3	380	160
Cong. Dist. 6	Arizona	220	300	50	30	130	60	3	430	190
Cong. Dist. 7	Arizona	480	600	120	80	280	120	7	950	410
Cong. Dist. 8	Arizona	220	300	60	40	130	60	3	440	190
Cong. Dist. 9	Arizona	310	400	80	50	180	80	4	600	260
AZ TOTALS	Arizona	2,660	3,300	660	420	1,550	670	39	5,220	2,270
Cong. Dist. 1	California	260	300	70	40	270	120	4	220	90
Cong. Dist. 2	California	200	300	50	30	200	90	3	170	70
Cong. Dist. 3	California	260	300	70	40	260	110	4	220	90
Cong. Dist. 4	California	200	200	50	30	200	90	3	160	70
Cong. Dist. 5	California	180	200	40	30	180	80	3	150	60
Cong. Dist. 6	California	320	400	80	50	320	140	5	260	110
Cong. Dist. 7	California	220	300	60	40	230	100	3	180	80
Cong. Dist. 8	California	310	400	80	50	310	140	5	250	110
Cong. Dist. 9	California	280	400	70	50	290	120	4	230	100
Cong. Dist. 10	California	250	300	60	40	260	110	4	210	90

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 11	California	200	300	50	30	210	90	3	170	70
Cong. Dist. 12	California	220	300	60	40	220	100	3	180	80
Cong. Dist. 13	California	270	300	70	40	280	120	4	220	100
Cong. Dist. 14	California	160	200	40	30	170	70	2	140	60
Cong. Dist. 15	California	150	200	40	20	150	70	2	130	50
Cong. Dist. 16	California	420	500	100	70	420	180	6	340	150
Cong. Dist. 17	California	150	200	40	20	150	70	2	120	50
Cong. Dist. 18	California	130	200	30	20	140	60	2	110	50
Cong. Dist. 19	California	170	200	40	30	170	80	3	140	60
Cong. Dist. 20	California	250	300	60	40	250	110	4	210	90
Cong. Dist. 21	California	400	500	100	60	410	180	6	330	140
Cong. Dist. 22	California	310	400	80	50	310	140	5	260	110
Cong. Dist. 23	California	300	400	80	50	300	130	4	250	110
Cong. Dist. 24	California	240	300	60	40	240	100	3	200	90
Cong. Dist. 25	California	220	300	50	30	220	90	3	180	80
Cong. Dist. 26	California	180	200	50	30	180	80	3	150	70
Cong. Dist. 27	California	190	200	50	30	190	80	3	160	70
Cong. Dist. 28	California	240	300	60	40	240	110	4	200	90
Cong. Dist. 29	California	300	400	70	50	300	130	4	250	110

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 30	California	220	300	50	30	220	100	3	180	80
Cong. Dist. 31	California	250	300	60	40	260	110	4	210	90
Cong. Dist. 32	California	230	300	60	40	230	100	3	190	80
Cong. Dist. 33	California	170	200	40	30	170	70	2	140	60
Cong. Dist. 34	California	400	500	100	60	400	170	6	330	140
Cong. Dist. 35	California	270	300	70	40	270	120	4	220	90
Cong. Dist. 36	California	310	400	80	50	310	130	4	250	110
Cong. Dist. 37	California	310	400	80	50	310	130	4	250	110
Cong. Dist. 38	California	190	200	50	30	190	80	3	160	70
Cong. Dist. 39	California	170	200	40	30	170	80	3	140	60
Cong. Dist. 40	California	360	500	90	60	370	160	5	300	130
Cong. Dist. 41	California	250	300	60	40	250	110	4	210	90
Cong. Dist. 42	California	210	300	50	30	210	90	3	170	70
Cong. Dist. 43	California	290	400	70	50	290	130	4	240	100
Cong. Dist. 44	California	280	300	70	40	280	120	4	230	100
Cong. Dist. 45	California	210	300	50	30	210	90	3	180	80
Cong. Dist. 46	California	250	300	60	40	260	110	4	210	90
Cong. Dist. 47	California	260	300	70	40	270	120	4	220	90
Cong. Dist. 48	California	180	200	40	30	180	80	3	150	60

Appendix C-4 (Continued)

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 49	California	150	200	40	20	150	70	2	120	50
Cong. Dist. 50	California	250	300	60	40	250	110	4	210	90
Cong. Dist. 51	California	320	400	80	50	330	140	5	270	120
Cong. Dist. 52	California	190	200	50	30	190	80	3	160	70
Cong. Dist. 53	California	230	300	60	40	230	100	3	190	80
CA TOTALS	California	13,000	16,200	3,240	2,070	13,070	5,680	190	10,670	4,640
Cong. Dist. 1	Colorado	360	400	70	50	170	70	4	830	360
Cong. Dist. 2	Colorado	310	300	60	40	150	60	4	730	320
Cong. Dist. 3	Colorado	380	400	80	50	180	80	5	880	380
Cong. Dist. 4	Colorado	280	300	60	40	130	60	3	650	280
Cong. Dist. 5	Colorado	290	300	60	40	140	60	3	670	290
Cong. Dist. 6	Colorado	240	200	50	30	110	50	3	560	240
Cong. Dist. 7	Colorado	280	300	60	40	130	60	3	660	290
CO TOTALS	Colorado	2,130	2,200	440	300	1,010	440	26	4,980	2,170
Cong. Dist. 1	Connecticut	290	300	60	40	200	90	3	200	90
Cong. Dist. 2	Connecticut	210	200	40	30	150	60	3	150	60
Cong. Dist. 3	Connecticut	290	300	60	40	200	90	3	200	90
Cong. Dist. 4	Connecticut	280	300	60	40	190	80	3	190	80

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 5	Connecticut	300	300	60	40	210	90	4	210	90
CT TOTALS	Connecticut	1,380	1,400	290	190	940	410	17	950	410
Del. Dist.	Dist. of Columbia	330	300	70	50	140	60	4	410	180
DC TOTALS	Dist. of Columbia	330	300	70	50	140	60	4	410	180
Cong. Dist.	Delaware	380	400	80	60	160	70	5	430	190
DE TOTALS	Delaware	380	400	80	60	160	70	5	430	190
Cong. Dist. 1	Florida	260	300	70	40	140	60	4	460	200
Cong. Dist. 2	Florida	240	300	60	40	130	60	4	440	190
Cong. Dist. 3	Florida	290	400	70	50	150	70	4	520	230
Cong. Dist. 4	Florida	200	300	50	30	110	50	3	360	160
Cong. Dist. 5	Florida	380	500	100	60	200	90	6	670	290
Cong. Dist. 6	Florida	270	300	70	40	140	60	4	480	210
Cong. Dist. 7	Florida	260	300	70	40	130	60	4	460	200
Cong. Dist. 8	Florida	210	300	50	30	110	50	3	380	170
Cong. Dist. 9	Florida	330	400	80	50	170	80	5	590	260
Cong. Dist. 10	Florida	270	300	70	40	140	60	4	490	210
Cong. Dist. 11	Florida	270	300	70	40	140	60	4	480	210
Cong. Dist. 12	Florida	250	300	60	40	130	60	4	440	190
Cong. Dist. 13	Florida	230	300	60	40	120	50	3	410	180

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 14	Florida	310	400	80	50	160	70	5	560	240
Cong. Dist. 15	Florida	270	300	70	40	140	60	4	490	210
Cong. Dist. 16	Florida	240	300	60	40	130	60	4	440	190
Cong. Dist. 17	Florida	270	300	70	40	140	60	4	480	210
Cong. Dist. 18	Florida	200	300	50	30	110	50	3	370	160
Cong. Dist. 19	Florida	240	300	60	40	130	50	4	430	190
Cong. Dist. 20	Florida	340	400	90	60	180	80	5	610	260
Cong. Dist. 21	Florida	230	300	60	40	120	50	3	420	180
Cong. Dist. 22	Florida	230	300	60	40	120	50	4	420	180
Cong. Dist. 23	Florida	210	300	50	30	110	50	3	380	170
Cong. Dist. 24	Florida	330	400	80	50	180	80	5	600	260
Cong. Dist. 25	Florida	300	400	80	50	160	70	4	530	230
Cong. Dist. 26	Florida	270	400	70	40	140	60	4	490	210
Cong. Dist. 27	Florida	290	400	70	50	150	70	4	510	220
FL TOTALS	Florida	7,200	9,200	1,840	1,170	3,800	1,650	108	12,910	5,620
Cong. Dist. 1	Georgia	290	400	70	50	130	60	4	470	210
Cong. Dist. 2	Georgia	370	500	90	60	170	70	5	610	270
Cong. Dist. 3	Georgia	260	300	60	40	120	50	4	420	180

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 4	Georgia	250	300	60	40	110	50	4	410	180
Cong. Dist. 5	Georgia	360	400	90	60	160	70	5	590	260
Cong. Dist. 6	Georgia	170	200	40	30	80	30	2	280	120
Cong. Dist. 7	Georgia	220	300	50	40	100	40	3	360	160
Cong. Dist. 8	Georgia	310	400	80	50	140	60	4	500	220
Cong. Dist. 9	Georgia	270	300	70	40	120	50	4	450	200
Cong. Dist. 10	Georgia	270	300	70	40	120	50	4	450	190
Cong. Dist. 11	Georgia	210	300	50	30	100	40	3	350	150
Cong. Dist. 12	Georgia	330	400	80	50	150	60	5	540	230
Cong. Dist. 13	Georgia	250	300	60	40	110	50	4	400	180
Cong. Dist. 14	Georgia	240	300	60	40	110	50	3	390	170
GA TOTALS	Georgia	3,810	4,700	950	600	1,720	750	56	6,240	2,710
Cong. Dist.	Guam	100	100	20	20	150	70	1	340	150
GU TOTALS	Guam	100	100	20	20	150	70	1	340	150
Cong. Dist. 1	Hawaii	160	200	40	30	220	100	2	510	220
Cong. Dist. 2	Hawaii	210	300	50	30	280	120	3	650	280
HI TOTALS	Hawaii	370	500	100	60	500	220	6	1,160	500
Cong. Dist. 1	Iowa	390	400	70	50	130	60	4	460	200

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 2	Iowa	430	400	80	60	140	60	5	510	220
Cong. Dist. 3	Iowa	370	300	70	50	120	50	4	440	190
Cong. Dist. 4	Iowa	360	300	70	50	120	50	4	420	180
IA TOTALS	Iowa	1,550	1,400	290	200	510	220	17	1,820	790
Cong. Dist. 1	Idaho	350	400	70	50	120	50	4	120	50
Cong. Dist. 2	Idaho	420	400	80	60	140	60	5	140	60
ID TOTALS	Idaho	770	800	160	110	270	120	9	250	110
Cong. Dist. 1	Illinois	390	400	80	50	160	70	5	420	180
Cong. Dist. 2	Illinois	390	400	80	60	160	70	5	430	190
Cong. Dist. 3	Illinois	250	300	50	40	100	40	3	270	120
Cong. Dist. 4	Illinois	310	300	70	40	130	60	4	340	150
Cong. Dist. 5	Illinois	240	300	50	30	100	40	3	260	110
Cong. Dist. 6	Illinois	160	200	30	20	70	30	2	180	80
Cong. Dist. 7	Illinois	460	500	100	70	190	80	6	500	220
Cong. Dist. 8	Illinois	250	300	50	40	100	40	3	270	120
Cong. Dist. 9	Illinois	260	300	60	40	110	50	3	280	120
Cong. Dist. 10	Illinois	220	200	50	30	90	40	3	240	110
Cong. Dist. 11	Illinois	240	200	50	30	100	40	3	260	110

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 12	Illinois	340	400	70	50	140	60	4	360	160
Cong. Dist. 13	Illinois	400	400	80	60	160	70	5	430	190
Cong. Dist. 14	Illinois	160	200	30	20	70	30	2	180	80
Cong. Dist. 15	Illinois	290	300	60	40	120	50	4	310	140
Cong. Dist. 16	Illinois	280	300	60	40	110	50	3	310	130
Cong. Dist. 17	Illinois	360	400	80	50	150	60	4	390	170
Cong. Dist. 18	Illinois	270	300	60	40	110	50	3	290	130
IL TOTALS	Illinois	5,270	5,600	1,110	750	2,150	940	65	5,730	2,490
Cong. Dist. 1	Indiana	330	300	70	50	130	60	4	800	350
Cong. Dist. 2	Indiana	320	300	70	40	130	60	4	770	330
Cong. Dist. 3	Indiana	290	300	60	40	110	50	3	690	300
Cong. Dist. 4	Indiana	310	300	60	40	120	50	4	740	320
Cong. Dist. 5	Indiana	260	300	50	40	100	50	3	630	270
Cong. Dist. 6	Indiana	330	300	70	50	130	60	4	780	340
Cong. Dist. 7	Indiana	440	500	90	60	170	80	5	1,050	460
Cong. Dist. 8	Indiana	310	300	60	40	120	50	4	750	330
Cong. Dist. 9	Indiana	320	300	70	40	130	60	4	770	330
IN TOTALS	Indiana	2,910	3,000	600	400	1,160	500	35	6,970	3,030

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	Kansas	320	300	70	50	140	60	4	460	200
Cong. Dist. 2	Kansas	310	300	70	40	130	60	4	450	200
Cong. Dist. 3	Kansas	270	300	60	40	120	50	3	390	170
Cong. Dist. 4	Kansas	320	300	70	40	130	60	4	460	200
KS TOTALS	Kansas	1,230	1,300	260	170	520	230	15	1,770	770
Cong. Dist. 1	Kentucky	390	400	80	60	140	60	5	1,070	460
Cong. Dist. 2	Kentucky	370	400	80	50	130	60	5	1,010	440
Cong. Dist. 3	Kentucky	350	400	80	50	130	50	4	960	420
Cong. Dist. 4	Kentucky	300	300	70	40	110	50	4	840	360
Cong. Dist. 5	Kentucky	490	500	110	70	180	80	6	1,350	590
Cong. Dist. 6	Kentucky	380	400	80	50	140	60	5	1,040	450
KY TOTALS	Kentucky	2,270	2,500	490	330	820	360	29	6,260	2,720
Cong. Dist. 1	Louisiana	330	400	80	50	130	60	5	510	220
Cong. Dist. 2	Louisiana	440	500	110	70	170	70	6	670	290
Cong. Dist. 3	Louisiana	410	500	100	60	160	70	6	620	270
Cong. Dist. 4	Louisiana	420	500	100	70	160	70	6	640	280
Cong. Dist. 5	Louisiana	420	500	100	60	160	70	6	640	280
Cong. Dist. 6	Louisiana	320	400	80	50	130	50	5	490	210
LA TOTALS	Louisiana	2,350	2,800	560	360	920	400	33	3,570	1,550

Appendix C-4 (Continued)

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	Massachusetts	370	400	70	50	250	110	4	390	170
Cong. Dist. 2	Massachusetts	310	300	60	40	210	90	3	320	140
Cong. Dist. 3	Massachusetts	290	300	60	40	190	80	3	300	130
Cong. Dist. 4	Massachusetts	250	200	50	30	160	70	3	260	110
Cong. Dist. 5	Massachusetts	280	300	50	40	180	80	3	290	130
Cong. Dist. 6	Massachusetts	250	200	50	30	170	70	3	260	110
Cong. Dist. 7	Massachusetts	530	500	100	70	350	150	6	550	240
Cong. Dist. 8	Massachusetts	280	300	50	40	190	80	3	290	130
Cong. Dist. 9	Massachusetts	300	300	60	40	200	90	3	320	140
MA TOTALS	Massachusetts	2,850	2,800	550	380	1,900	820	32	2,980	1,300
Cong. Dist. 1	Maryland	260	300	60	40	110	50	3	300	130
Cong. Dist. 2	Maryland	320	300	70	50	140	60	4	370	160
Cong. Dist. 3	Maryland	240	300	50	30	100	50	3	270	120
Cong. Dist. 4	Maryland	240	300	50	30	100	40	3	270	120
Cong. Dist. 5	Maryland	210	200	40	30	90	40	3	240	100
Cong. Dist. 6	Maryland	250	300	50	40	110	50	3	290	120
Cong. Dist. 7	Maryland	350	400	70	50	150	70	4	410	180
Cong. Dist. 8	Maryland	220	200	50	30	100	40	3	250	110
MD TOTALS	Maryland	2,090	2,200	440	290	910	400	26	2,400	1,040

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	Maine	370	300	60	40	160	70	3	90	40
Cong. Dist. 2	Maine	470	400	80	60	200	90	4	110	50
ME TOTALS	Maine	840	700	140	100	350	150	8	200	90
Cong. Dist. 1	Michigan	320	300	60	40	160	70	4	440	190
Cong. Dist. 2	Michigan	320	300	60	40	160	70	4	440	190
Cong. Dist. 3	Michigan	360	400	70	50	180	80	4	500	220
Cong. Dist. 4	Michigan	360	300	70	50	180	80	4	490	210
Cong. Dist. 5	Michigan	430	400	80	60	220	100	5	590	260
Cong. Dist. 6	Michigan	380	400	80	50	200	90	4	530	230
Cong. Dist. 7	Michigan	310	300	60	40	160	70	4	430	190
Cong. Dist. 8	Michigan	300	300	60	40	150	70	3	410	180
Cong. Dist. 9	Michigan	290	300	60	40	150	60	3	400	170
Cong. Dist. 10	Michigan	260	300	50	40	130	60	3	360	160
Cong. Dist. 11	Michigan	220	200	40	30	110	50	2	300	130
Cong. Dist. 12	Michigan	390	400	80	50	200	90	5	540	240
Cong. Dist. 13	Michigan	600	600	120	80	310	130	7	830	360
Cong. Dist. 14	Michigan	470	500	90	60	240	110	5	660	290
MI TOTALS	Michigan	5,010	4,900	980	670	2,560	1,110	58	6,920	3,010

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	Minnesota	310	300	60	40	110	50	3	350	150
Cong. Dist. 2	Minnesota	240	200	40	30	90	40	3	270	120
Cong. Dist. 3	Minnesota	230	200	40	30	80	40	2	260	110
Cong. Dist. 4	Minnesota	370	300	70	50	130	60	4	420	180
Cong. Dist. 5	Minnesota	450	400	80	60	160	70	5	510	220
Cong. Dist. 6	Minnesota	250	200	50	30	90	40	3	290	130
Cong. Dist. 7	Minnesota	330	300	60	40	120	50	4	380	160
Cong. Dist. 8	Minnesota	340	300	60	40	120	50	4	390	170
MN TOTALS	Minnesota	2,520	2,300	450	320	900	390	27	2,870	1,250
Cong. Dist. 1	Missouri	390	400	80	60	130	60	5	990	430
Cong. Dist. 2	Missouri	190	200	40	30	60	30	2	470	200
Cong. Dist. 3	Missouri	260	300	50	40	90	40	3	660	290
Cong. Dist. 4	Missouri	380	400	80	50	120	50	5	960	420
Cong. Dist. 5	Missouri	380	400	80	50	120	50	5	960	420
Cong. Dist. 6	Missouri	310	300	70	40	100	40	4	790	340
Cong. Dist. 7	Missouri	410	400	90	60	140	60	5	1,050	460
Cong. Dist. 8	Missouri	420	400	90	60	140	60	5	1,060	460
MO TOTALS	Missouri	2,740	2,900	580	390	900	390	34	6,920	3,010

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	Mississippi	340	400	80	50	150	60	5	510	220
Cong. Dist. 2	Mississippi	460	500	110	70	200	80	6	680	300
Cong. Dist. 3	Mississippi	390	400	90	60	170	70	5	580	250
Cong. Dist. 4	Mississippi	410	500	100	60	180	80	6	620	270
MS TOTALS	Mississippi	1,600	1,900	370	240	680	300	22	2,380	1,040
Cong. Dist.	Montana	660	600	110	80	190	80	7	990	430
MT TOTALS	Montana	660	600	110	80	190	80	7	990	430
Cong. Dist. 1	North Carolina	400	500	90	60	160	70	5	530	230
Cong. Dist. 2	North Carolina	280	300	70	40	110	50	4	380	160
Cong. Dist. 3	North Carolina	290	300	70	40	120	50	4	380	170
Cong. Dist. 4	North Carolina	280	300	70	40	110	50	4	380	160
Cong. Dist. 5	North Carolina	340	400	80	50	140	60	5	460	200
Cong. Dist. 6	North Carolina	360	400	80	50	140	60	5	480	210
Cong. Dist. 7	North Carolina	340	400	80	50	140	60	5	460	200
Cong. Dist. 8	North Carolina	310	400	70	50	130	50	4	420	180
Cong. Dist. 9	North Carolina	340	400	80	50	140	60	5	460	200
Cong. Dist. 10	North Carolina	320	400	70	50	130	60	4	430	190
Cong. Dist. 11	North Carolina	310	400	70	50	120	50	4	410	180

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 12	North Carolina	320	400	70	50	130	60	4	430	190
Cong. Dist. 13	North Carolina	330	400	80	50	130	60	4	440	190
NC TOTALS	North Carolina	4,220	4,900	980	640	1,700	740	57	5,640	2,450
Cong. Dist.	North Dakota	550	400	80	60	120	50	5	850	370
ND TOTALS	North Dakota	550	400	80	60	120	50	5	850	370
Cong. Dist. 1	Nebraska	270	300	50	40	80	40	3	510	220
Cong. Dist. 2	Nebraska	290	300	60	40	90	40	3	540	240
Cong. Dist. 3	Nebraska	270	300	50	40	80	40	3	510	220
NE TOTALS	Nebraska	830	800	160	110	260	110	9	1,570	680
Cong. Dist. 1	New Hampshire	260	200	50	30	140	60	3	90	40
Cong. Dist. 2	New Hampshire	240	200	40	30	130	60	3	80	30
NH TOTALS	New Hampshire	500	500	90	60	270	120	5	160	70
Cong. Dist. 1	New Jersey	290	300	60	40	150	70	3	230	100
Cong. Dist. 2	New Jersey	280	300	60	40	150	60	3	230	100
Cong. Dist. 3	New Jersey	200	200	40	30	100	50	2	160	70
Cong. Dist. 4	New Jersey	250	300	50	40	130	60	3	200	90
Cong. Dist. 5	New Jersey	180	200	40	30	90	40	2	140	60
Cong. Dist. 6	New Jersey	270	300	60	40	140	60	3	220	100

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 7	New Jersey	190	200	40	30	100	40	2	150	70
Cong. Dist. 8	New Jersey	410	400	90	60	220	90	5	330	140
Cong. Dist. 9	New Jersey	340	400	70	50	180	80	4	270	120
Cong. Dist. 10	New Jersey	410	400	80	60	210	90	5	320	140
Cong. Dist. 11	New Jersey	150	200	30	20	80	30	2	120	50
Cong. Dist. 12	New Jersey	310	300	60	40	160	70	4	250	110
NJ TOTALS	New Jersey	3,280	3,400	680	460	1,720	750	39	2,620	1,140
Cong. Dist. 1	New Mexico	360	400	80	50	210	90	5	990	430
Cong. Dist. 2	New Mexico	420	500	90	60	250	110	5	1,180	510
Cong. Dist. 3	New Mexico	380	400	80	50	220	100	5	1,050	460
NM TOTALS	New Mexico	1,160	1,300	250	170	670	290	15	3,210	1,400
Cong. Dist.	Northern Mariana Is.	70	100	20	10	130	60	1	240	100
MP TOTALS	Northern Mariana Is.	70	100	20	10	130	60	1	240	100
Cong. Dist. 1	Nevada	360	400	90	60	210	90	5	600	260
Cong. Dist. 2	Nevada	220	300	60	40	130	60	3	380	170
Cong. Dist. 3	Nevada	220	300	50	30	130	60	3	370	160
Cong. Dist. 4	Nevada	240	300	60	40	140	60	4	410	180
NV TOTALS	Nevada	1,040	1,300	260	170	610	270	15	1,770	770

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 1	New York	230	200	50	30	90	40	3	90	40
Cong. Dist. 2	New York	200	200	40	30	80	40	2	80	30
Cong. Dist. 3	New York	200	200	40	30	80	40	2	80	30
Cong. Dist. 4	New York	210	200	40	30	90	40	2	80	40
Cong. Dist. 5	New York	300	300	60	40	130	60	4	120	50
Cong. Dist. 6	New York	310	300	60	40	130	60	4	120	50
Cong. Dist. 7	New York	460	500	90	60	190	80	5	180	80
Cong. Dist. 8	New York	530	500	110	70	220	100	6	210	90
Cong. Dist. 9	New York	370	400	80	50	160	70	4	150	60
Cong. Dist. 10	New York	370	400	70	50	150	70	4	140	60
Cong. Dist. 11	New York	300	300	60	40	130	60	4	120	50
Cong. Dist. 12	New York	290	300	60	40	120	50	3	110	50
Cong. Dist. 13	New York	560	600	110	80	240	100	7	220	100
Cong. Dist. 14	New York	330	300	70	50	140	60	4	130	60
Cong. Dist. 15	New York	810	800	160	110	340	150	10	320	140
Cong. Dist. 16	New York	330	300	70	50	140	60	4	130	60
Cong. Dist. 17	New York	280	300	60	40	120	50	3	110	50
Cong. Dist. 18	New York	280	300	60	40	120	50	3	110	50

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 19	New York	300	300	60	40	120	50	3	120	50
Cong. Dist. 20	New York	320	300	60	40	130	60	4	120	50
Cong. Dist. 21	New York	350	400	70	50	150	60	4	140	60
Cong. Dist. 22	New York	360	400	70	50	150	70	4	140	60
Cong. Dist. 23	New York	370	400	70	50	150	70	4	140	60
Cong. Dist. 24	New York	360	400	70	50	150	70	4	140	60
Cong. Dist. 25	New York	340	300	70	50	140	60	4	130	60
Cong. Dist. 26	New York	420	400	80	60	170	80	5	160	70
Cong. Dist. 27	New York	250	300	50	30	100	50	3	100	40
NY TOTALS	New York	9,440	9,600	1,920	1,300	3,950	1,720	111	3,690	1,610
Cong. Dist. 1	Ohio	340	300	70	50	120	50	4	590	260
Cong. Dist. 2	Ohio	340	400	70	50	130	60	4	600	260
Cong. Dist. 3	Ohio	490	500	100	70	180	80	6	850	370
Cong. Dist. 4	Ohio	300	300	60	40	110	50	4	530	230
Cong. Dist. 5	Ohio	260	300	50	40	100	40	3	460	200
Cong. Dist. 6	Ohio	330	300	70	50	120	50	4	580	250
Cong. Dist. 7	Ohio	300	300	60	40	110	50	4	530	230
Cong. Dist. 8	Ohio	320	300	70	40	120	50	4	570	250

Appendix C-4 (Continued)

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 9	Ohio	460	500	100	60	170	70	6	810	350
Cong. Dist. 10	Ohio	360	400	70	50	130	60	4	630	280
Cong. Dist. 11	Ohio	500	500	100	70	180	80	6	880	380
Cong. Dist. 12	Ohio	290	300	60	40	110	50	3	510	220
Cong. Dist. 13	Ohio	420	400	90	60	150	70	5	730	320
Cong. Dist. 14	Ohio	260	300	50	40	100	40	3	460	200
Cong. Dist. 15	Ohio	310	300	60	40	110	50	4	540	230
Cong. Dist. 16	Ohio	220	200	40	30	80	40	3	380	170
OH TOTALS	Ohio	5,510	5,700	1,130	760	2,040	890	66	9,650	4,200
Cong. Dist. 1	Oklahoma	330	400	80	50	120	50	4	440	190
Cong. Dist. 2	Oklahoma	400	500	90	60	150	60	5	540	240
Cong. Dist. 3	Oklahoma	340	400	80	50	120	50	5	460	200
Cong. Dist. 4	Oklahoma	300	300	70	50	110	50	4	410	180
Cong. Dist. 5	Oklahoma	370	400	90	60	130	60	5	500	220
OK TOTALS	Oklahoma	1,740	2,000	400	260	630	270	24	2,350	1,020
Cong. Dist. 1	Oregon	280	300	60	40	90	40	4	150	60
Cong. Dist. 2	Oregon	360	400	80	50	120	50	5	190	80
Cong. Dist. 3	Oregon	330	400	70	50	110	50	4	180	80
Cong. Dist. 4	Oregon	370	400	80	50	120	50	5	190	80

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 5	Oregon	290	300	60	40	90	40	4	150	70
OR TOTALS	Oregon	1,620	1,800	360	240	520	230	21	860	370
Cong. Dist. 1	Pennsylvania	200	200	40	30	80	30	2	200	90
Cong. Dist. 2	Pennsylvania	630	600	130	90	240	110	7	630	280
Cong. Dist. 3	Pennsylvania	550	600	110	80	210	90	6	560	240
Cong. Dist. 4	Pennsylvania	220	200	40	30	90	40	3	230	100
Cong. Dist. 5	Pennsylvania	320	300	60	40	130	50	4	330	140
Cong. Dist. 6	Pennsylvania	270	300	50	40	100	50	3	270	120
Cong. Dist. 7	Pennsylvania	300	300	60	40	120	50	3	300	130
Cong. Dist. 8	Pennsylvania	380	400	80	50	150	60	4	380	170
Cong. Dist. 9	Pennsylvania	280	300	60	40	110	50	3	280	120
Cong. Dist. 10	Pennsylvania	300	300	60	40	120	50	3	310	130
Cong. Dist. 11	Pennsylvania	310	300	60	40	120	50	4	310	130
Cong. Dist. 12	Pennsylvania	330	300	70	50	130	60	4	340	150
Cong. Dist. 13	Pennsylvania	310	300	60	40	120	50	4	310	130
Cong. Dist. 14	Pennsylvania	320	300	60	40	120	50	4	320	140
Cong. Dist. 15	Pennsylvania	320	300	60	40	120	50	4	320	140
Cong. Dist. 16	Pennsylvania	340	300	70	50	130	60	4	350	150
Cong. Dist. 17	Pennsylvania	250	200	50	30	90	40	3	250	110

Appendix C-4 (Continued)

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 18	Pennsylvania	370	400	70	50	140	60	4	370	160
PA TOTALS	Pennsylvania	5,990	6,000	1,190	810	2,310	1,000	69	6,040	2,630
Res. Comm. Dist.	Puerto Rico	2,880	3,800	760	480	2,620	1,140	45	10,510	4,570
PR TOTALS	Puerto Rico	2,880	3,800	760	480	2,620	1,140	45	10,510	4,570
Cong. Dist. 1	Rhode Island	240	300	50	30	180	80	3	300	130
Cong. Dist. 2	Rhode Island	200	200	40	30	150	70	2	250	110
RI TOTALS	Rhode Island	450	500	90	60	340	150	5	560	240
Cong. Dist. 1	South Carolina	240	300	60	40	120	50	3	240	100
Cong. Dist. 2	South Carolina	250	300	60	40	120	50	3	250	110
Cong. Dist. 3	South Carolina	300	400	70	50	140	60	4	290	130
Cong. Dist. 4	South Carolina	260	300	60	40	120	50	4	250	110
Cong. Dist. 5	South Carolina	280	300	60	40	130	60	4	270	120
Cong. Dist. 6	South Carolina	390	500	90	60	190	80	5	380	170
Cong. Dist. 7	South Carolina	340	400	80	50	160	70	5	330	140
SC TOTALS	South Carolina	2,070	2,400	490	320	990	430	28	2,000	870
Cong. Dist.	South Dakota	460	400	80	60	160	70	5	310	140
SD TOTALS	South Dakota	460	400	80	60	160	70	5	310	140
Cong. Dist. 1	Tennessee	360	400	80	50	130	60	5	410	180
Cong. Dist. 2	Tennessee	300	300	70	40	110	50	4	350	150

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 3	Tennessee	340	400	80	50	130	60	5	390	170
Cong. Dist. 4	Tennessee	330	400	70	50	120	50	4	380	160
Cong. Dist. 5	Tennessee	290	300	70	40	110	50	4	340	150
Cong. Dist. 6	Tennessee	310	400	70	50	120	50	4	360	160
Cong. Dist. 7	Tennessee	290	300	60	40	110	50	4	330	140
Cong. Dist. 8	Tennessee	270	300	60	40	100	40	4	310	140
Cong. Dist. 9	Tennessee	410	500	90	60	150	70	5	470	210
TN TOTALS	Tennessee	2,900	3,300	660	430	1,090	470	38	3,340	1,450
Cong. Dist. 1	Texas	310	400	80	50	150	60	4	540	230
Cong. Dist. 2	Texas	230	300	60	40	110	50	3	410	180
Cong. Dist. 3	Texas	200	200	50	30	100	40	3	350	150
Cong. Dist. 4	Texas	280	300	70	40	140	60	4	490	210
Cong. Dist. 5	Texas	270	300	70	40	130	60	4	470	200
Cong. Dist. 6	Texas	220	300	50	40	110	50	3	390	170
Cong. Dist. 7	Texas	230	300	60	40	110	50	3	410	180
Cong. Dist. 8	Texas	260	300	70	40	130	60	4	460	200
Cong. Dist. 9	Texas	400	500	100	60	190	80	6	700	300
Cong. Dist. 10	Texas	240	300	60	40	110	50	3	420	180
Cong. Dist. 11	Texas	260	300	60	40	120	50	4	450	200

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 12	Texas	220	300	50	30	110	50	3	380	170
Cong. Dist. 13	Texas	250	300	60	40	120	50	4	440	190
Cong. Dist. 14	Texas	250	300	60	40	120	50	4	450	190
Cong. Dist. 15	Texas	430	500	110	70	210	90	6	770	330
Cong. Dist. 16	Texas	350	400	90	60	170	70	5	620	270
Cong. Dist. 17	Texas	330	400	80	50	160	70	5	590	260
Cong. Dist. 18	Texas	400	500	100	60	200	90	6	710	310
Cong. Dist. 19	Texas	290	400	70	50	140	60	4	500	220
Cong. Dist. 20	Texas	350	400	90	60	170	70	5	620	270
Cong. Dist. 21	Texas	240	300	60	40	110	50	3	420	180
Cong. Dist. 22	Texas	200	200	50	30	100	40	3	350	150
Cong. Dist. 23	Texas	320	400	80	50	150	70	5	560	240
Cong. Dist. 24	Texas	200	300	50	30	100	40	3	360	160
Cong. Dist. 25	Texas	230	300	60	40	110	50	3	400	180
Cong. Dist. 26	Texas	200	200	50	30	100	40	3	350	150
Cong. Dist. 27	Texas	320	400	80	50	160	70	5	570	250
Cong. Dist. 28	Texas	410	500	100	70	200	90	6	720	310
Cong. Dist. 29	Texas	430	500	110	70	210	90	6	760	330

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 30	Texas	370	500	90	60	180	80	5	660	290
Cong. Dist. 31	Texas	240	300	60	40	120	50	4	420	180
Cong. Dist. 32	Texas	230	300	60	40	110	50	3	400	180
Cong. Dist. 33	Texas	380	500	90	60	180	80	6	660	290
Cong. Dist. 34	Texas	420	500	100	70	200	90	6	740	320
Cong. Dist. 35	Texas	400	500	100	60	190	80	6	700	300
Cong. Dist. 36	Texas	270	300	70	40	130	60	4	470	200
TX TOTALS	Texas	10,620	13,200	2,650	1,690	5,160	2,240	155	18,700	8,130
Cong. Dist. 1	Utah	240	300	50	30	90	40	3	660	290
Cong. Dist. 2	Utah	290	300	60	40	110	50	4	790	350
Cong. Dist. 3	Utah	280	300	60	40	110	50	4	770	330
Cong. Dist. 4	Utah	270	300	60	40	100	40	3	730	320
UT TOTALS	Utah	1,070	1,200	230	150	410	180	14	2,950	1,280
Cong. Dist. 1	Virginia	250	300	50	40	100	40	3	260	110
Cong. Dist. 2	Virginia	230	200	50	30	90	40	3	240	100
Cong. Dist. 3	Virginia	370	400	80	50	150	60	5	390	170
Cong. Dist. 4	Virginia	320	300	70	50	130	60	4	340	150
Cong. Dist. 5	Virginia	320	300	70	50	130	60	4	330	140

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 6	Virginia	310	300	70	40	120	50	4	320	140
Cong. Dist. 7	Virginia	250	300	50	40	100	40	3	260	110
Cong. Dist. 8	Virginia	260	300	60	40	110	50	3	270	120
Cong. Dist. 9	Virginia	380	400	80	60	150	70	5	400	170
Cong. Dist. 10	Virginia	160	200	30	20	60	30	2	170	70
Cong. Dist. 11	Virginia	210	200	50	30	80	40	3	220	90
VA TOTALS	Virginia	3,040	3,300	660	440	1,230	530	38	3,200	1,390
Cong. Dist.	Virgin Islands	70	100	10	10	120	50	1	200	90
VI TOTALS	Virgin Islands	70	100	10	10	120	50	1	200	90
Cong. Dist.	Vermont	320	300	60	40	150	60	3	10	10
VT TOTALS	Vermont	320	300	60	40	150	60	3	10	10
Cong. Dist. 1	Washington	200	200	40	30	60	30	3	80	30
Cong. Dist. 2	Washington	250	300	50	40	70	30	3	100	40
Cong. Dist. 3	Washington	270	300	60	40	80	30	3	110	50
Cong. Dist. 4	Washington	360	400	80	50	100	40	5	140	60
Cong. Dist. 5	Washington	330	400	70	50	90	40	4	130	60
Cong. Dist. 6	Washington	240	300	50	30	70	30	3	90	40
Cong. Dist. 7	Washington	260	300	60	40	70	30	3	100	40

Appendix C-4 (Continued)

Total Impacts by Congressional District

DISTRICT	STATE	NEW 5-YEAR FEDERAL INVESTMENT IN LOCAL SOLAR (MILLION \$)	NEW LOCAL SOLAR (MW)	NEW SOLAR HOMES (THOUSANDS)	NEW SOLAR HOMES IN MARGINALIZED COMMUNITIES (THOUSANDS)	5-YEAR TOTAL BILL SAVINGS (MILLION \$)	ANNUAL BILL SAVINGS AFTER YEAR 5 (MILLION \$)	NEW SOLAR JOBS (THOUSAND JOB-YEARS)	5-YEAR TOTAL EMISSIONS REDUCTIONS (THOUSAND METRIC TONS CO ₂ e)	ANNUAL EMISSIONS REDUCTIONS AFTER YEAR 5 (THOUSAND METRIC TONS CO ₂ e)
Cong. Dist. 8	Washington	230	300	50	30	70	30	3	90	40
Cong. Dist. 9	Washington	240	300	50	40	70	30	3	100	40
Cong. Dist. 10	Washington	270	300	60	40	80	30	3	110	50
WA TOTALS	Washington	2,660	2,900	580	390	760	330	34	1,040	450
Cong. Dist. 1	Wisconsin	300	300	60	40	120	50	3	490	210
Cong. Dist. 2	Wisconsin	360	300	70	50	150	60	4	590	260
Cong. Dist. 3	Wisconsin	370	300	70	50	150	70	4	590	260
Cong. Dist. 4	Wisconsin	580	500	110	70	240	100	6	940	410
Cong. Dist. 5	Wisconsin	250	200	50	30	100	50	3	410	180
Cong. Dist. 6	Wisconsin	280	300	50	40	120	50	3	460	200
Cong. Dist. 7	Wisconsin	330	300	60	40	140	60	4	540	230
Cong. Dist. 8	Wisconsin	320	300	60	40	130	60	3	520	230
WI TOTALS	Wisconsin	2,800	2,600	520	360	1,150	500	30	4,540	1,980
Cong. Dist. 1	West Virginia	330	300	70	40	110	50	4	840	360
Cong. Dist. 2	West Virginia	350	300	70	50	110	50	4	890	390
Cong. Dist. 3	West Virginia	370	400	70	50	120	50	4	940	410
WV TOTALS	West Virginia	1,040	1,000	210	140	340	150	12	2,670	1,160
Cong. Dist.	Wyoming	290	300	50	40	100	40	3	860	370
WY TOTALS	Wyoming	290	300	50	40	100	40	3	860	370

Notes

1. "Solar array intended to power jobs on Minneapolis' north side," *Minnesota Public Radio*, March 2018.
2. In our analysis, "low- and moderate-income" generally refers to incomes below 80% of Area Median Income (AMI), and "solar deserts" refer to areas currently lacking local solar deployment. For more detailed definitions, see the full policy document in Appendix B.
3. "30 Times More Jobs from Rooftop Solar, Utility Filing Says," John Farrell, *Institute for Local Self-Reliance*, April 2021; "Solar Jobs Census," *Solar Foundation*, 2018; "Assessment of the Value, Impact, and Validity of the Jobs and Economic Development Impacts (JEDI) Suite of Models," L. Billman and D. Keyser, *National Renewable Energy Laboratory*, August 2013.
4. "Legal Petition Aims to Stop Utilities From Forcing Customers to Bankroll Anti-Environment Trade Groups," *Center for Biological Diversity*, March 2021.
5. "Why Local Solar for All Costs Less: A New Roadmap for the Lowest Cost Grid," *Coalition for Community Solar Access, Vibrant Clean Energy, Vote Solar, and Local Solar for All*, December 2020.
6. According to the Environmental Protection Agency (EPA), a single passenger vehicle emits approximately 4.6 metric tons of CO₂ and a coal-fired power plant emits nearly 4 million metric tons of CO₂ over the course of a year. "Greenhouse Gases Equivalencies Calculator - Calculations and References," EPA. The average nameplate capacity of a coal-fired power plant in 2018 was approximately 1,000 MW and the average annual energy generation was roughly 4 million MWh per plant. "Emissions & Generation Resource Integrated Database (eGRID), 2018," EPA, March 2020.
7. "Supporters of 30MSH," *30 Million Solar Homes*.
8. Defined here and elsewhere in the report as "job-years," which refers to the equivalent of a single full-time job for a single year.
9. According to the Environmental Protection Agency (EPA), a single passenger vehicle emits approximately 4.6 metric tons of CO₂ and a coal-fired power plant emits nearly 4 million metric tons of CO₂ over the course of a year. "Greenhouse Gases Equivalencies Calculator - Calculations and References," EPA. The average nameplate capacity of a coal-fired power plant in 2018 was approximately 1,000 MW and the average annual energy generation was roughly 4 million MWh per plant. "Emissions & Generation Resource Integrated Database (eGRID), 2018," EPA, March 2020.
10. "Solar Market Insight Report 2020: Year in Review," *Wood Mackenzie and Solar Energy Industries Association*, March 2021.
11. "Peer Effects in the Diffusion of Solar Photovoltaic Panels," Bryan Bollinger and Kenneth Gillingham, *Marketing Science*, Volume 31, Number 6, September 2012; "Spatial patterns of solar photovoltaic system adoption: The influence of neighbors and the built environment," Marcello Graziano and Kenneth Gillingham, *Journal of Economic Geography*, Volume 15, Issue 4, July 2015; "What drives social contagion in the adoption of solar photovoltaic technology?," Andrea Baranzini, Stefano Carattini, and Martin Péclat, *Grantham Institute on Climate Change and the Environment*, Working Paper No. 270, July 2017.
12. "U.S. Solar Market Insight Executive Summary: 2020 Year in Review," *Wood Mackenzie and Solar Energy Industries Association*, March 2021.
13. "U.S. Solar Market Insight: 2020 Year in Review," *Wood Mackenzie*, May 2021.
14. "National Solar Jobs Census," *Solar Foundation*, 2020.
15. These numbers were found by averaging figures from the National Renewable Energy Laboratory (NREL). The same source estimates 6.8 job-years per megawatt of utility-scale solar, a figure that does not match more current sources. Other sources estimate that rooftop solar creates 10 times more jobs than utility-scale solar per megawatt and 30 times more jobs per million dollars invested. We conservatively used NREL's report due to its transparent job-year and full-time equivalent definitions. "30 Times More Jobs from Rooftop Solar, Utility Filing Says," John Farrell, *Institute for Local Self-Reliance*, April 2021; "Solar Jobs Census," *Solar Foundation*, 2018; "Assessment of the Value, Impact, and Validity of the Jobs and Economic Development Impacts (JEDI) Suite of Models," L. Billman and D. Keyser, *National Renewable Energy Laboratory*, August 2013.
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