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Via Electronic Submission

To: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy (EERE)

Attn: Dr. Becca Jones-Albertus, Director, DOE Solar Energy Technologies Office (SETO)

Re: DOE – EERE T 540.111-02: Request for Information (RFI) – Supporting Successful Solar Plus Storage Deployment Serving Low-Income and Disadvantaged Communities

Solar One and Kinetic Communities Consulting (KC3) submit the following joint comments in response to DOE’s RFI on solar plus storage deployment in Low-Income and Disadvantaged Communities (LIDAC). Solar One is a not-for-profit organization whose mission is to design and deliver innovative education, training, and technical assistance that fosters sustainability and resiliency in diverse urban environments. Solar One’s Here Comes Solar envisions a just, renewable, and resilient energy future where communities disproportionately impacted by social and environmental injustices have equitable access to the benefits of solar energy.

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KC3 is the first Minority & Women-Owned Business Enterprise (MWBE) and certified Benefit Corporation (B-Corp) delivering real energy equity consulting in New York City. KC3 offers strategic energy planning across the New York State region, advocating for and implementing strategies to advance a democratic and community-led fossil-free energy future.

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1. **Category 1: Maximizing Impact**

1.1. Technical barriers

Challenges: Many residential buildings within LIDAC areas require roof repairs or replacements, or asbestos remediation, before they can pursue rooftop solar (indeed, roof repairs are the #1 financed project of the [Solar Energy Loan Fund](#)). Roof repairs and asbestos remediation are costly and pose a major barrier, but are often excluded from federal and state solar incentives and tax credits. Further, Historic District buildings often cannot pursue solar since their exterior façade cannot be altered, so solar visible from the street is infeasible.

Solutions: Funding should be made available at the federal level for roof repairs and asbestos remediation necessary for solar installation, such as by expanding the existing Investment

Tax Credit (ITC) and the Residential Clean Energy Credit (25D) to include expenses for roof repairs/replacement and asbestos remediation for LIDAC residents. This would alleviate the financial burden for LIDAC building owners to adopt solar, while working toward restorative justice by countering historic underinvestment in these communities.

Tools: The federal government could collaborate with the Landmark Preservation Commission (LPC) to establish clear, pro-solar regulations. For example, for low-rise historic buildings with limited roof space, raised solar arrays could be visible from the ground as long as they are positioned towards the back of the building.

1.2. Barriers due to lack of internet access

Challenges: Internet connectivity and know-how are currently required to digitally sign a permitting application for residential rooftop solar in NYC. Online platforms serve as the preferred and often only method to enroll in community solar projects. This poses a major barrier to the [8.1% of NYC households](#) that lack access to the internet, the [24.5%](#) that lack a broadband subscription, and the [16.2%](#) who are seniors and may not be comfortable navigating online platforms. Notably, lack of internet access is especially pronounced among black, Hispanic, low-income, and senior households.

Solutions: Internet access must be included as a key metric to achieving a just energy transition. Government could partner with internet providers to offer subsidized plans or incentives to expand access and improve affordability. LIDAC community solar projects should facilitate outreach, sign-ups, and bill payment via mail, phone, and/or in-person.

Tools: DOE could provide funding for community centers, libraries, and other spaces to develop and launch in-person programs to promote solar adoption for LIDAC residents and help people with their applications. DOE could create a map of participating locations so residents can easily identify where they can go for in-person assistance.

1.3. Barriers for LIDAC homeowners

Challenges: Power Purchase Agreements (PPAs) and roof leases have made solar more accessible for some, but rampant predatory practices such as hidden escalator clauses have increased energy cost burden for those already vulnerable. Solar ownership would guarantee far greater bill savings, but remains out of reach for most LIDAC residents.

Solutions: All PPA or roof lease agreements with LIDAC residents should be required to guarantee bill savings. While current regulations allow homeowners with low tax liability to spread credits over several years, LIDAC homeowners can often only pay or borrow the cost to install the system if they receive the benefit the same year. Upfront subsidies, lower interest rates, on-bill repayment plans, and forgivable loans for low-income households could help make the initial investment in solar more tenable by funding roof or electrical updates and allowing homeowners to provide a larger down payment on the project. Resources should be made easily available to homeowners to confirm if a PPA or solar roof lease agreement is customer-friendly or predatory (see section 2.2).

Tools: The Department of Housing and Urban Development's (HUD) Federal Housing Administration (FHA) program, which provides community reinvestment structured loan

products for LMI households, should integrate solar loans into their product offerings. These should provide low and fixed interest rates and forgivable options for low-income households adopting solar. Project approvals should adhere to strict deadlines to avoid project delays.

1.4. Barriers to receiving federal tax credits

Challenges: While the Federal Investment Tax Credit (ITC) is intended to make solar ownership more affordable, homeowners can only take advantage of the Residential Clean Energy Credit (25D) and are excluded from the benefits of the ITC, including Elective Pay, Transferability, and ITC Bonus Credits. Low-income homeowners with little or no tax liability (especially seniors, residents on fixed incomes, and those who are unemployed) can only partially benefit from the tax credit and are entirely excluded from ITC bonus credits that can cover up to 60% of the system cost and have the potential to make solar truly affordable for LIDAC households.

Solutions: LIDAC homeowners should have the option to receive a refundable 25D credit, similar to the non-profit Elective Pay option in the ITC. Bonus credits such as the Low Income Community, Energy Community, and Tribal Lands bonus credits should be made available to homeowners as well as businesses.

Tools: The federal government could enact a provision for 1-4 family LIDAC homeowners to participate in Elective Pay of the ITC through the same application process for nonprofits. In addition, the federal government could extend the ITC bonus credits to homeowners through 25D to remove the barrier to solar ownership.

1.5. Barriers to multifamily buildings

Challenges: Residents of multifamily buildings, especially affordable housing, face key challenges when it comes to accessing solar and storage technology, including:

- **Decision-making power** – Nearly 70% of NYC households are renters and thus do not hold decision-making power relating to solar and storage on their rooftops.
- **Shared ownership** – Residents who share ownership of multifamily buildings are limited in the direct benefits from solar and storage that can accrue per household.
- **Affordability** – Affordable housing residents face limitations in purchasing solar and storage due to high costs, competing priorities for energy efficiency or other upgrades, and ineligibility for loans that could facilitate adoption.
- **Tax-benefits** – Non-tax-liable residents, such as retirees or those receiving government assistance, cannot benefit from federal and state tax credits for solar and storage. Further, many buildings are ineligible for property tax abatements as they are already abated or are property tax exempt, such as Housing Development Finance Corporations (HDFCs) or many buildings managed by NYC Housing Preservation & Development (HPD).

Solutions: Refundable tax credits as well as special loan programs with low to no interest rates would help facilitate LIDAC investments in solar and storage. Government legislation should include clear incentives to expand access to community solar and storage projects, which can provide the benefits of clean energy to those unable to install solar panels or storage on their own building's roof.

1.6. Barriers to community energy storage systems (ESS)

Context: In dense urban areas like New York City, limited land availability severely restricts community solar project development. While [over 2GW of community solar](#) has been deployed in NYS, less than 3% of it is currently accessible to NYC residents, even though the city houses over half of the State’s low-income population. Community ESS projects represent an innovative solution and mirror community solar in many ways: subscribers receive guaranteed bill savings by monetizing a portion of the project’s utility credits, which are generated when the battery provides power to the grid during periods of peak demand. Community ESS requires just 1% of the land area of a similarly sized solar project, facilitating bill savings for more subscribers while improving resiliency and local air quality.

Challenges: Current federal incentives such as the Investment Tax Credit (ITC) low-income adder and the Greenhouse Gas Reduction Fund (GGRF) require ESS to be associated with on-site solar or wind systems to receive the benefits. However, this is often infeasible in dense urban neighborhoods that would benefit from community storage. Without additional incentives or funding, ESS developers are unlikely to invest in projects benefiting LIDAC residents due to the extra costs this would entail (e.g., subscriber acquisition/management fees, credit risk reserves, financing costs). Instead, the bill savings from community ESS will get passed onto more financeable off-takers (e.g., see [Starbucks community ESS agreement](#)).

Solutions: The federal government should provide funding and support for community storage projects that provide guaranteed savings for LIDAC residents, even if they are not sited contiguously with solar or wind projects (as is currently required to receive the ITC low-income adder) or paired with residential or community solar (as is currently required to be eligible for the GGRF Solar For All program). Eligibility rules should include community storage projects sited in dense urban environments as standalone projects or contractually associated with geographically non-contiguous solar/wind projects.

Tools: In addition to making funding available for community storage, the federal government could develop a “case studies and best practices” tool outlining how utilities can funnel the benefits of community solar and storage directly to low-income customers, while incorporating key consumer protection requirements. For example, the NYS Expanded Solar For All program allows National Grid to pay project owners directly for a portion of the bill credits generated by a community solar project and automatically provide the remainder to income-eligible customers enrolled in the utility’s Energy Affordability Program. NYS Department of Public Service is currently considering a Statewide Solar For All program to bring a similar opportunity to all NYS low-income ratepayers. While such programs could be improved to ensure the benefits are commensurate with opt-in community solar, they do provide guaranteed bill savings for LIDAC customers, lowering barriers to entry as well as operational costs compared to relying on external off-takers / aggregators.

1.7. Barriers due to energy storage permitting

Challenges: The residential ESS market has been stalled in NYC due to permitting restrictions that require site-specific review and approval of each installation by the NYC

Department of Buildings (DOB) and the NYC Fire Department (FDNY). FDNY and DOB have been national leaders in achieving high safety standards for lithium-ion ESS projects as the industry and technology develop. However, this effort has been time- and resource-intensive and stalled the growth of the residential ESS market.

Tools: DOE SETO funded the development and commercialization of the SolarAPP+ tool in 2019 and has since provided funding to support its adoption. SETO could consider expanding this tool to provide clear federal guidance on appropriate safety requirements for residential ESS, as well as automated review of permit applications. This would equip FDNY and DOB with the evidence-based standards they need to streamline permitting requirements and unlock the residential ESS market in NYC.

2. Category 2: Customer Satisfaction

2.1. Lack of efficient and transparent bill credit systems

Challenges: Community solar and storage can offer significant bill savings. However, utilities are often slow to integrate crediting from these projects into their internal processes, resulting in a backlog of credits, unpredictable bills, and undue burden to LIDAC customers.

Solutions: Utilities need to coordinate with the government to: 1) automatically identify LIDAC customers, 2) facilitate their subscription to community solar and storage projects, and 3) automatically enroll them in streamlined bill crediting.

Tools: The federal government could develop a “case studies and best practices” tool outlining how states, utilities, local governments, and other entities can funnel the community solar and storage benefits directly to low-income customers (see section 1.5).

2.2. Limited awareness of community solar and storage opportunities

Challenges: Many LIDAC residents are unaware of the benefits of community solar and storage and lack access to accurate information on how to enroll. Many distrust energy alternatives due to past negative experiences with Energy Service Companies (ESCOs) and solar companies with predatory and misleading practices.

Tools: A public-facing government website with centralized information about community solar and storage options could help reinforce program legitimacy. The site should include educational resources on what consumers should expect when engaging with solar and storage companies, as well as links to state-level resources to find available projects.

3. Category 3: Workforce and Entrepreneurship Opportunities

3.1. Creating pathways to employment

Challenges: The solar and storage industries remain unacceptably homogenous. [According to the Interstate Renewable Energy Council](#), women and African Americans are both underrepresented, with a wide gender gap in pay, advancement, and job satisfaction. In the solar industry, 88% of senior executives are white and 80% are men. To create a more inclusive workforce, solar industry employers need to invest in LIDAC workforce recruitment and development programs as well as internal upward mobility pathways for employees from underrepresented backgrounds. On the other side, LIDAC residents need help getting connected to job opportunities, paid workforce training, and career development.

Tools: To cultivate local and generational wealth in historically underinvested communities, the government must promote local hiring and invest in small business mobilization. Government-funded and/or contracted solar and storage projects should include percentage requirements for small businesses and Minority and Women-Owned Business Enterprises (MWBEs), as well as prevailing wage requirements for large projects. Further, the federal government should invest in workforce development, such as by providing grant funding for wage subsidies tied to hiring commitments from the solar industry, startup capital to help MWBEs get their businesses off the ground, and subsidized training. To ensure effective distribution, financing of wage subsidies should be administered through local workforce development agencies or organizations that connect LIDAC residents to solar industry jobs. DOE should consider highlighting and promoting local policies that can help build an inclusive solar and storage workforce.

3.2. Workforce training best practices

Challenges: The skills taught in solar workforce training programs and the desired experience by the solar industry are not always aligned, hindering the marketability of LIDAC workforce trainees. Solar installers are willing to interview graduates of workforce training programs but there is a low conversion rate to full-time employment.

Tools: Creating knowledge-sharing hubs between vocational entities and the solar industry can bridge the gap between training classes and job experience for LIDAC workforce trainees. The development of resources outlining best practices and curriculum guidelines for vocational training would help those entities adjust to industry changes, and vocational organizations could share how the industry can better support LIDAC individuals interested in entering the solar industry. States like New York have created regional clean energy hubs where local organizations across the state work within their region to identify workforce deployment challenges for LIDAC and share those findings with other regional hubs. The Federal Government can fund a similar model to regions nationwide to encourage both industries to better coordinate their efforts.

4. Category 4: Long-term Success & Sustainability

4.1. Establishing long-term value streams for LIDAC solar and energy storage systems (ESS)

Context: Residential ESS remains expensive and out of reach for most LIDAC residents. The current market-leading product, the Tesla PowerWall 2, costs around \$13,000 before taxes. While the federal ITC and the 25D credit both grant a 30% tax credit to support deployment, many LIDAC residents do not have a \$3,900 federal tax burden to claim the full credit, let alone enough income to pay (or feel comfortable borrowing) the remaining \$9,100. Better long-term value streams for ESS would decrease the payback period and make the inclusion of ESS in a Power Purchase Agreement (PPA) arrangement more feasible, thereby making residential ESS more viable for LIDAC residents.

Challenges: A key value stream of ESS is an opt-in utility Time of Use (TOU) rate structure for residential customers. Con Edison, the electric utility serving most of NYC, currently offers a [TOU rate](#) that defines off-peak hours as 12am - 8 am, requiring peak-shifting over 16

hours to benefit from the rate structure. Most residential batteries only discharge for 4hrs, making the TOU structure uneconomic as a long-term value stream for residential ESS.

Tools: The federal government could work with state Public Service Commissions to reward and/or require utilities to create optional TOU rate structures designed to accelerate the adoption of residential solar and storage systems, for example, by rewarding customers who opt-in to the TOU rate and reduce demand over a 4-hour peak period. However, it should be noted that mandatory TOU rates can have a significant negative effect on solar adoption, and it is important not to incentivize energy storage at the expense of solar. Utilities should be prohibited from making the TOU rate mandatory and should be required to provide clear guidance and support to LIDAC residents to understand whether they would be a good candidate for residential ESS on a TOU rate structure from a bill relief perspective.

4.2. Ensuring a sustainable and humane supply chain

Context: A just energy transition will only succeed if the technologies it relies upon are built sustainably and humanely. To date, the mining of cobalt, lithium, silicon, and other raw minerals critical to solar and battery manufacturing has led to grievous human rights abuses in [the Dem. Republic of the Congo](#), as well as [across Africa](#), [China](#), and [South America](#).

Challenges: Solar and battery manufacturers are not required to disclose the origin of materials used in their projects, making it difficult for local governments to ban (or consumers to consciously avoid) products reliant on forced labor, forced displacement, and/or reckless environmental contamination.

Tools: The federal government should work with organizations like the [Initiative for Responsible Mining Assurance \(IRMA\)](#) to require solar and battery manufacturers and developers active in the U.S. to monitor and disclose whether the mines used in their supply chain meet environmental and social performance standards. In addition, more federal funding should be directed toward developing recycling plants and programs to maximize the reuse of critical minerals and minimize reliance on mining.

5. Category 5: Relation to Current Programs & Resources

5.1. Integrating energy storage into SETO's mission

Challenges: We understand that SETO's mission is focused on rapidly accelerating the deployment of existing solar technologies. In contrast, the Office of Electricity's Energy Storage Division's mission is focused primarily on research and development in support of new ESS technologies, particularly long-duration storage. This leaves a significant gap in programming and resources geared toward accelerating the deployment of existing ESS technologies and taking advantage of the tremendous opportunity they present for achieving equity goals for LIDAC residents.

Tools: SETO could consider expanding its mission to include deployment of solar and storage technologies, as well as standalone community storage for projects designed to benefit LIDAC residents by providing bill credits, grid resiliency, and improved air quality.