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Community Shared Solar Electric Generation  
System Application

# Neighborhood SolarShares Program

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December 2019

Powering forward.  
Together.



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# Addendum and Summary of Program Improvements

This document is SMUD's revised application to be a Section 10-115 administrator for the "Neighborhood SolarShares® program", hereinafter referred to also as the SolarShares program.

## 1.0 Introduction

The 2019 California Building Standards (2019 Building Standards) include a mandate for solar energy on all new low-rise residential buildings and provisions for developers to meet the mandate through a community solar compliance option rather than rooftop solar. SMUD began working with the Commission staff shortly after the adoption of the 2019 Building Standards on its application to administer a Community Shared Solar Electric Generation System, pursuant to the 2019 Building Standards. The proposed Neighborhood SolarShares program involves signed agreements between SMUD and interested developers/builders committing participating homes/communities to the program for 20 years, enforced through community covenants, codes, and restrictions (CC&Rs). Participants will see SolarShares charges and receive SolarShares credits on their bills and are guaranteed an annual net benefit of \$10 per kW per year. The amount of solar generation allocated to each participant will match the 2019 Building Standards solar requirement for each home.

As a community-owned, not-for-profit utility, SMUD's purpose is to enhance the quality of life for our customers and community through creative energy solutions. SMUD's innovative Neighborhood SolarShares program squarely supports this mission.

Neighborhood SolarShares:

- provides homebuilders, developers, and customers with a lower cost way of meeting the solar mandate while ensuring equitable rates for all of SMUD's customers;
- guarantees savings on homeowners' energy bills for twenty years with no upfront costs or credit arrangements;
- makes purchasing a home in the Sacramento region more affordable;
- allows for optimal panel positioning, increasing solar generation and thus reducing demand during peak hours, when gas-fired plants are tapped to meet our load;
- puts the burden of maintenance, monitoring, and repairs on SMUD, rather than individual homeowners; and

- supports additional renewable generation due to retired RECs and reduces greenhouse gas (GHG) emissions in our community.

After working with Commission staff for over 18 months to develop its program, SMUD submitted its initial application in September 2019. Shortly thereafter, the Sacramento Housing and Redevelopment Agency, the Sacramento Tree Foundation, the Building Industry Association, 16 local developers, including those committed to constructing affordable housing, the state building trades, and other stakeholders docketed strong support letters for SMUD's program. Additionally, Commission staff filed comments explaining in detail how SMUD's application met each of the legal requirements set forth in section 10-115. Accordingly, at the Commission's November Business Meeting, Commission staff recommended that the Commission approve SMUD's application. Despite meeting the legal requirements for approval, the Commission voted to table SMUD's initial Neighborhood SolarShares application due to issues raised by the rooftop solar industry and other stakeholders about the definition of community solar, the perceived lack of customer choice, and the amount of customer benefit under our program.

Unfortunately, the Commission's deferral of our application prevents customer choice at the beginning of the solar mandate and deprives homebuilders of a valuable tool to lower the construction costs of new homes while supporting California's carbon reduction goals. This is especially critical as the State of California and the Sacramento region are facing an affordable housing crisis. While we were disappointed with the Commission's decision, we remain committed to this program and have been working with the Commission staff to refine it in a way that addresses the majority of the issues raised.

This revised Application now includes the following refinements, which are described in greater detail in Section 3 of this Addendum:

- 1. SMUD's program will source its renewable power from local resources.** All resources that supply power to homes and neighborhoods that participate in our SolarShares program will be located in SMUD's service territory. SMUD supplies power to most of Sacramento County as well as small portions of neighboring Placer and Yolo counties.
- 2. SMUD's program will source its renewable power from smaller resources.** SMUD will only retire Renewable Energy Certificates (RECs) on behalf of the program from resources that are 20 MW or less, unless there is program demand that cannot be met from these resources at a particular point in time. SMUD's existing Feed-in-Tariff (FIT) resources are available to serve initial demand under the program. SMUD's new Wildflower resource, which is scheduled to come online in November 2020, will replace the FIT resources and supply the program until fully subscribed. SMUD will pursue options for

developing additional resources up to 20 MW, to provide ongoing supply once Wildflower is fully subscribed. The FIT resources will remain available to serve a portion of program demand if development timeframes unfold so that new resources and Wildflower are insufficient at any point in time.

- 3. SMUD has doubled the guaranteed financial benefit to homeowners who participate in the program.** Neighborhood SolarShares' net participant benefit will be doubled from \$5 per kW per year to \$10 per kW per year.
- 4. SMUD's program will source its renewable power from new resources.** SMUD will only retire RECs on behalf of the program from resources that come online after January 1, 2020, unless there is program demand that cannot be met from these resources at a particular point in time. SMUD's new Wildflower resource, which is scheduled to come online in November 2020, will meet program demand for some time. SMUD will pursue options to develop new resources (up to 20 MW) to provide ongoing supply when Wildflower is fully subscribed.
- 5. SMUD's program will offer homebuilders and developers choice.** While SMUD's original Neighborhood SolarShares program design did not constrain builders or developers to enroll all homes in a development (that is a choice of the developer), SMUD commits to assisting participating developers/builders to facilitate offering a point of purchase choice option for prospective homebuyers between compliant rooftop solar and Neighborhood SolarShares participation.

## 2.0 SMUD's Commitment to Solar, Renewable Generation, and Carbon Reduction

For over 70 years, SMUD has been an environmental leader in Sacramento and across the nation. We're committed to providing our customers and community with clean reliable energy at affordable prices. For decades, SMUD has provided vital assistance for the development and expansion of the rooftop solar industry. To date, over 210 megawatts (MW) of customer-owned rooftop solar have been installed in SMUD's service area and its energy portfolio currently includes over 170 MW of utility-scale solar. Over the next three years, SMUD will more than double that, by adding nearly 270 MW of new utility-scale solar. SMUD's recently-adopted Integrated Resource Plan projects 550 MW of customer-owned rooftop solar by 2030 and more than 1,500 MW of utility-scale solar over the next 20 years, nearly 1,000 MW of which is to be built locally. SMUD's Neighborhood SolarShares application is just one component of SMUD's commitment to renewable energy and carbon reduction.

SMUD's IRP also commits to a net-zero carbon future for the Sacramento region, through increasing and dramatic investments in transportation and building electrification. In addition to the environmental benefits of increased solar generation,

SMUD's efforts to transform the transportation system and the building infrastructure in our service territory will provide significant community benefits, including improvements in both outdoor and indoor air quality and GHG emission reductions.

## **2.1 The Positive Impact of SMUD's Neighborhood SolarShares Program on Carbon Reduction**

The proposed Neighborhood SolarShares program continues our leadership position by providing an option for builders and homeowners to invest in reliable, affordable carbon-free solar energy and supporting affordable housing in our region. It is an important compliance option for the solar mandate in the 2019 Building Standards, particularly for low-rise multifamily construction, affordable housing, and infill developments. It also provides an important model for a high-rise renewable component in future building standards. In fact, SMUD's companion Developer SolarShares program has already enrolled participants to include solar for high-rise developments that are not subject to the solar mandate.

As part of its efforts to reduce carbon and criteria emissions and promote the use and availability of renewable energy within its service area, SMUD designed the Neighborhood SolarShares program to meet the community solar option in section 10-115 of the 2019 Building Standards.<sup>1</sup> Every new, low-rise residential home permitted in California starting January 1, 2020 will include new solar – either through installation on the rooftops of those new homes or the equivalent amount from a community shared solar resource. This new solar provides environmental benefits in California by reducing GHG emissions and criteria pollutants as fossil resources are displaced. Over time, however, SMUD expects that generation from the Neighborhood SolarShares participation and commensurate environmental benefits will prove superior, because:

- Rooftop systems will degrade and provide less solar over time. The panels in SMUD's supply portfolio will also degrade over time, but SMUD's allocation of solar to participants does not. Unlike rooftop systems, SMUD replaces the generation lost to degradation over time.
- Rooftop systems are likely to be not as well maintained in comparison to a Neighborhood SolarShares supply resource. Even simple washing of panels on a regular basis will enable more generation from the equivalent capacity.
- SMUD will retire RECs in the Western Renewable Energy Generation Information system (WREGIS) on the behalf of program participants, making these RECs unavailable to the Regional Portfolio Standard (RPS) market. This

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<sup>1</sup> Under Section 10-115, the Commission may approve a community shared solar system as a compliance option to partially or totally meet the onsite solar electric generation system that is otherwise required by Section 150.1(b) of Title 24, California Code of Regulations, Part 6.

means that in order to meet its RPS goals, SMUD must obtain additional renewable generation from other renewable resources. In contrast, it is unclear what happens with rooftop solar RECs. They may remain with the homeowner and be considered essentially “retired” because they are never certificated by the CEC or registered in WREGIS so they cannot participate in the RPS market. Alternatively, they may remain the property of the solar installer and be aggregated into a certified, registered resource used for the RPS. (The CEC RPS resource database contains nearly 25 MW of aggregated small PV resources). This means it is likely that more RPS generation will occur to meet RPS obligations when the Neighborhood SolarShares alternative is chosen.

- Equipment failures (inverter failure after about 10 years is a known issue) will not be noticed or fixed as quickly with a rooftop system. With SolarShares, SMUD will closely monitor the resources and quickly repair equipment issues, providing more generation than rooftop with swifter and more reliable return to service. Close monitoring will also mean fewer failures, since problems can be identified and fixed before the failure point.
- Less shading will occur with the offsite SolarShares portfolio over time than with rooftop systems.

The increased solar generation explained above will mean that fewer fossil power plants will have to run, improving air quality and reducing GHG emissions from the electric sector. Beyond this basic effect, the environment and air quality will be further improved with SolarShares in comparison to rooftop because:

- The SolarShares option makes infill and affordable housing projects more viable after January 1, 2020, when the solar mandate is in place, leading to denser and closer development, which reduces vehicle miles travelled and provides commensurate reductions in the GHG and criteria emissions.
- SMUD will retire allowances commensurate with the allocated solar generation via participation in the Air Resources Board’s (ARB’s) Voluntary Renewable Energy program (VRE).<sup>2</sup> The VRE program allows purchasers of voluntary renewable products to back up claims of GHG reductions within a capped system without the expense of purchasing and retiring allowances. This goes beyond the rooftop benefit of fewer GHG emissions from the electric sector (the Neighborhood SolarShares program matches and exceeds this benefit) to

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<sup>2</sup> The Voluntary Renewable Electricity (VRE) Program allows purchasers of eligible voluntary renewable electricity to request retirement of allowances on their behalf under the Cap-and-Trade Program. The VRE Program supports purchases of renewable electricity and renewable energy credits (RECs) that are not mandated by the Renewables Portfolio Standard and provides a mechanism for the recognition of voluntary purchases of renewable electricity or RECs in the Cap-and-Trade Program. The Cap-and-Trade Regulation specifies a percentage of vintage 2013-2020 allowances to be set aside each year into a Voluntary Renewable Electricity Reserve Account for the VRE Program.

demonstratable GHG reductions overall in the Cap and Trade structure. With rooftop solar, while GHG reductions in the electric sector are likely, there is no guarantee that allowances will be retired, and the Cap and Trade program implies that an equivalent amount of GHG emissions will be allowed elsewhere under the Cap without such retirement.

- Offsite systems can be more easily oriented to provide greater generation at times when natural gas power plants are running and will get turned down. This means that offsite systems can help meet demand during peak periods when utilities would otherwise have to resort to non-renewable resources, thus reducing the demand for those resources.
- Offsite systems will allow neighborhoods to be built with more and taller trees and better home orientations. The expected eventual tree “canopy” will sequester carbon and reduce cooling loads through roof shading and will lower ambient air temperatures in neighborhoods and homes. This helps reduce demand and improves the health and aesthetics of our local communities.
- Offsite systems can be built on disturbed lands, avoiding environmentally damaging areas and prime farmland. In addition, environmental mitigation required for the construction of offsite systems often preserves more land for environmental benefits than the land used for the projects.

## **2.2 SMUD’s Neighborhood SolarShares Program Can Help Bring Clean, Renewable, Affordable Energy to Lower Income Communities**

As a community owned, not for profit, SMUD is committed to providing its diverse customer base with clean, reliable energy at affordable prices. This commitment extends to all segments of our customers and includes a focus on our low income and disadvantaged communities. SMUD offers a number of services and programs geared specifically to address the needs of customers that fall into this segment with an emphasis on managing and reducing total energy and electric bill burden.

The 2019 Building Standards’ community shared solar option is critical for low-income, multi-family housing developments. Those developments often have constrained roof space and site space for solar and may lack the necessary system infrastructure for multiple interconnected systems. For example, the roof space on a three-story apartment building has three times as many vents, air conditioning systems, and other roof penetrations that compete with available space for rooftop solar for three apartments or condos under the same rooftop, adding to the cost of construction for these affordable housing situations. As a result, for affordable multi-family housing projects, compliance with the mandate may be extremely difficult without the access to an alternate compliance option like SMUD’s Neighborhood SolarShares program, which can significantly reduce the complexity of solar installation and provide further

savings through ongoing bill reductions. The Sacramento Housing and Redevelopment Authority supports SMUD's Neighborhood SolarShares program for exactly this reason.

SMUD's Neighborhood SolarShares program also provides our individual community members with easier and more affordable access to local solar generation. While installing rooftop solar under a Power Purchase Arrangement (PPA) or a solar lease structure can reduce the up-front costs of homes with solar and keep home prices lower, tenants in affordable housing may not have sufficient credit ratings to facilitate the necessary third-party arrangements with a solar company.

As a community-owned utility, it is important to SMUD to be able to provide our customers in low income and disadvantaged communities the ability to access low cost solar energy in future housing developments. SMUD's Neighborhood SolarShares program helps achieve that goal and furthers SMUD's commitment to these communities.

### **3.0 Improvements to SMUD's SolarShares Program and Response to Feedback**

SMUD's revised program continues to meet and exceed the requirements of Section 10-115(a):

- SMUD's resources will be available for inspection, consistent with Section 10-115(a)(1);
- SMUD's community solar systems will provide the same or better energy performance than rooftop solar, as required by section 10-115(a)(2);
- Participants will receive a guaranteed financial benefit for at least twenty years, as set forth in sections 10-115(a)(3)-(4);
- Generation to serve demand through this program will be additional—it will be allocated only once and not double-counted, to satisfy Section 10-115(a)(5); and
- SMUD will be accountable for this program and maintain adequate recordkeeping to ensure continued compliance, as required by Section 10-115(a)(6).

We have revised key elements of our program in response to the feedback we received from members of the rooftop solar industry, the public, and the Commission. We are pleased to highlight additional benefits and new, voluntary improvements to our program below.

#### **Issue: Size and Proximity**

Some stakeholders suggested that SMUD's initial Neighborhood SolarShares application was not consistent with common conceptions of "Community Solar" programs because the supply portfolio for the program included some resources that they believed were outside of SMUD's service territory and were considered to be "too large" for a community solar program. As Commission staff stated, the 2019 Building Standards purposely left without definition what was meant by "Community Solar" to

allow for greater flexibility in designing programs. Our revised proposal takes advantage of this flexibility with improvements that address the stakeholder feedback.

### **SMUD's Voluntary Program Improvements:**

- **All resources in the supply portfolio for Neighborhood Solar Shares will be located in SMUD's service territory.**
- **SMUD will only retire Renewable Energy Certificates (RECs) on behalf of the program from resources that are 20 MW or less, unless there is program demand that cannot be met from these resources at a particular point in time. SMUD's existing Feed-in-Tariff (FIT) resources are available to serve initial demand under the program. SMUD's new Wildflower resource, which is scheduled to come online in November 2020, will replace the FIT resources and supply the program until fully subscribed. SMUD will pursue options for developing additional resources up to 20 MW, to provide ongoing supply once Wildflower is fully subscribed. The FIT resources will remain available to serve a portion of program demand if development timeframes unfold so that new resources and Wildflower are insufficient at any point in time.**

This mirrors the maximum size limit for resources in the CPUC Green Tariff Shared Renewable program and is consistent with the parameters in the Coalition for Community Solar Access November 2016 publication "Community Solar Policy Decision Matrix", which recommends resources be within a utility service area and no more than 20 MW in size. This voluntary program improvement recognizes that an Application can go beyond the technical language in the 2019 Building Standards, which does not include restrictions on the location and size of resources being used for the community solar option, to fit within a stricter definition of "community solar."

### **Issue: Participant Benefit**

Some stakeholders suggested that the original Neighborhood SolarShares proposal did not provide enough participant benefit in comparison to rooftop installations under the solar mandate. The 2019 Building Standards do not require any specific amount of benefit and simply require a demonstrated assurance of benefit to the tenant or homeowner.<sup>3</sup> Nevertheless, SMUD reviewed our pricing structure and proposes to increase the net benefit to the homeowner in a manner that does not result in cost shifts to non-participants.

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<sup>3</sup> As noted by Commission staff in its Final Response to Comment Matrix filed on October 2, 2018 as part of the 2019 Building Standards proceeding (Docket No. 17-BSTD-02): "Section 10-115 allows applications to be considered on their own merits and approved *based on a demonstrated assurance of benefit to the tenant or homeowner, and is largely agnostic with respect to program specifics.*" (Emphasis added).

## SMUD Voluntary Program Improvement:

- **SMUD will double the guaranteed net participant benefit in Neighborhood SolarShares from \$5 per kW per year to \$10 per kW per year.**

This increase in benefits provides a guaranteed net benefit of \$40 per year or \$800 over 20 years to program participants with a 4-kW system. It's important to note that these benefits are guaranteed. Unlike with a rooftop solar system, SolarShares participant benefits will stay the same regardless whether rates change and will not be impacted by the potentially steep costs of system repair or maintenance. In addition, SMUD will monitor community solar systems to help prevent outages before they occur and maintain its systems to reduce degradation and optimize output. All the while, the participant will continue receiving their guaranteed benefits without being faced with routine and unexpected maintenance, repair, or failure costs that can be associated with rooftop solar systems.

The same cannot be said with respect to rooftop solar systems. While SMUD estimates that under current Time-of-Day Rates, with typical solar rooftop generation timing and current typical PPA pricing there would be an approximate benefit of \$85 per year initially for the alternative rooftop system (under a PPA),<sup>4</sup> this level of potential benefit is not guaranteed over 20 years and will be reduced over time by system degradation and system outages, and potentially by changes to SMUD rates.

In addition, onsite solar benefits will vary significantly depending on how systems are procured (up-front mortgage inclusion vs. solar lease vs. PPA structure) as well as type and orientation and installation characteristics of systems. Another uncertainty relates to the comprehensive value of solar and solar+storage study SMUD is currently undertaking, prior to consideration of potential changes in net energy metering rates. The 2019 Building Standards requirement could not feasibly require the community solar option to match a variety of uncertain rooftop benefits case by case as they decline and change over time. In fact, the only related requirement for the community solar option is that the bill savings must be guaranteed to be greater than program costs.

SMUD's Neighborhood SolarShares program represents a significant break from voluntary green pricing and SolarShares programs in existence today, which require paying more than standard rates to participate. Publicly-owned utilities must justify such program benefits as sufficiently cost-based to avoid the risk of violating the terms of Proposition 26. SMUD believes that the level of improved participant benefit can be justified and that the level and guarantee for 20 years makes the benefit comparable to the range of potential rooftop benefits over time.

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<sup>4</sup> SMUD estimates that a typical solar generation profile will provide average per kWh savings of 11.8 cents per kWh. A PPA rate of 10.5 cents per kWh and typical 17% capacity factor yields the estimated \$85/year savings for a 4 kW system.

As a community-owned, not-for-profit utility, SMUD works diligently to ensure that each of its programs, SolarShares included, reflects SMUD's costs of providing services so that no one set of customers subsidizes another. This allows us to keep our rates affordable for *all* of our customers, including those that rent their homes, live in tree canopied neighborhoods, or cannot otherwise afford to install solar or purchase a new home.

### Issue: New Resources

Some stakeholders suggested that the resources being used in the original Neighborhood SolarShares proposal were “existing,” in contrast to the new solar that would be provided with rooftop installation. The 2019 Building Standards require that resources must exist for inspection as homes are built, and thus SMUD cannot rely solely on prospective resources. Nevertheless, SMUD has revised its proposal to address the question of using new versus existing resources.

### SMUD Voluntary Program Improvement:

- **SMUD will only retire RECs on behalf of the program from resources that come online after January 1, 2020, unless there is program demand that cannot be met from these resources at a particular point in time. SMUD's new Wildflower resource, which is scheduled to come online in November 2020, will meet program demand for some time. SMUD will pursue options to develop new resources (up to 20 MW) to provide ongoing supply when Wildflower is fully subscribed.**

SMUD is currently constructing a new 13MW solar resource in Sacramento County — the Wildflower facility, which is expected to go online in 2020. While homes constructed prior to the expected on-line date of SMUD's Wildflower resource (November 2020) may need RECs from the existing Feed-in-Tariff resources, SMUD anticipates that Wildflower will have capacity to supply all the RECs for the SolarShares program for several years once constructed. SMUD is in the process of identifying additional viable sites for solar resources in our service territory because of our commitment to local solar in our IRP and will pursue identified options for developing additional resources up to 20 MW in a timely fashion to provide ongoing supply once Wildflower is fully subscribed. The FIT resources will remain available to serve a portion of program demand if development timeframes unfold so that new resources and Wildflower are insufficient at any point in time.

Importantly, the 2019 Building Standards require that resources must exist for inspection as homes are built, and thus SMUD cannot rely solely on prospective resources. No community shared solar structure will work without resources coming on-line prior to homes being constructed, and these resources cannot be efficiently “turned on” one house at a time as happens with rooftop solar.

### Issue: Customer Choice

Some stakeholders commented that the Neighborhood SolarShares program constrained customer choice when purchasing a home in a participating development.

### SMUD Voluntary Clarification

- **SMUD’s Neighborhood SolarShares program provides an affordable alternative to meeting the solar mandate, and SMUD’s original Neighborhood SolarShares program design did not require builders or developers to enroll all homes in a development — that is a choice of the developer. Accordingly, SMUD commits to assisting participating developers/builders to facilitate offering a point of purchase choice option for prospective homebuyers between compliant rooftop solar and Neighborhood SolarShares participation.**

In this revised application, SMUD clarifies that builders and developers are free to enroll whole developments, partial developments, or even house-by-house as they are able to and desire to do so and commits to assisting that choice. SMUD understands from discussions with developers that most would be able to offer such consumer choice, except perhaps for homes where the roof has already been installed (with or without rooftop solar).

### 3.1 Other Stakeholder Feedback

Many stakeholders raised issues related to aspects of the Building Standards requirements that are beyond SMUD’s control. SMUD may consider, as necessary and at the appropriate time, additional improvements to the program in response to changes to the Building Standards requirements, or in response to other market developments. SMUD responds to this feedback as follows:

**20-year participation requirement:** Some stakeholders raised the issue that SMUD’s Neighborhood SolarShares program constrains consumer choice by “locking up” participants for 20 years. The 2019 Building Standards require the community-shared solar system provide energy savings benefits dedicated to the building for a period no less than twenty (20) years. Accordingly, SMUD cannot address this issue in a revised application, absent modification to the Building Code through a formal rulemaking process. To the extent that changes are made to the Building Standards that modifies the durability requirement, SMUD will revisit its program.

**Storage and load flexibility:** Some issues were raised about the impact on potential storage options in the home under SMUD’s Neighborhood SolarShares program. SMUD’s program does not prevent addition of storage by participants, either at the time of enrollment or later. In fact, SMUD provides significant incentives for builders to include storage in new homes. Our current Smart Homes program includes a \$2,000 incentive for battery storage with either rooftop solar or SolarShares participation.

SMUD also has pilot programs in which existing homes can receive incentives for installing storage, including storage partially controlled by the utility which furthers the State's load flexibility goals. Neighborhood SolarShares customers are welcome to install storage and participate in these programs.

It is true that the 2019 Building Standards do not allow builders compliance credit allowing for a less efficient building envelope in the Neighborhood SolarShares case, in contrast to homes built with storage and rooftop solar, for which the compliance credit is available. SMUD understands that there is recognition by the CEC that the lack of compliance credit to builders for storage is an explicit part of the 2019 Building Standards, requiring a rulemaking or some other CEC formal process to address. In short, unfortunately, this compliance credit issue is not something SMUD can address with voluntary program changes.

As concerns about the State's storage and load flexibility goals are addressed with explicit changes by the CEC, SMUD will consider appropriate program changes, if any, to meet new Code requirements and to facilitate the State's load flexibility goals.

**Disadvantaged communities and low-income customers:** Some stakeholders have raised issues related to how the Neighborhood SolarShares program can assist disadvantaged communities in our service territory. SMUD has many programs to support low-income customers and those in disadvantaged communities, including rate assistance, energy efficiency programs, the installation of rooftop solar and a Sustainable Communities strategy that provides support in 4 key areas: social wellbeing, a healthy environment, a prosperous economy and mobility. SMUD's Neighborhood SolarShares option facilitates the construction of affordable housing, which is a critical community need.

In addition, as the Neighborhood SolarShares program proceeds, SMUD will consider what aspects of the program can be developed in the context of our broader programs to support disadvantaged communities. For example, SMUD may include consideration of disadvantaged communities when siting and developing new resources for the program.

**Virtual Net Energy Metering (VNEM):** Some stakeholders raised the issue that the lack of a VNEM option in SMUD's service territory limits compliance choices for multifamily buildings, where rooftop solar is more difficult to include. SMUD notes that exceptions to the 2019 Building Standards ease compliance with rooftop for multifamily buildings, allowing significantly smaller solar sizes, to keep the rooftop compliance option viable for these building types. SMUD's Neighborhood SolarShares program is an alternative or additional option, not the only option. There is no mention of VNEM in the 2019 Building Standards, either in association with the community shared solar option or otherwise. Nevertheless, SMUD is open to consideration of VNEM along with

other NEM changes as part of the comprehensive solar review process that SMUD has initiated this year, with results expected in 2021.

#### 4.0 Conclusion

SMUD again thanks the Commission and staff as well as our community for their guidance. As a community-owned, not-for-profit utility, SMUD takes seriously its role in shaping and supporting a future powered by reliable, renewable, affordable and diverse energy resources. The State of California and the Sacramento region are facing an affordable housing crisis, and our SolarShares program provides homebuilders and developers the opportunity to utilize the alternate compliance option thoughtfully included in the 2019 Building Standards in a manner that ensures the development of carbon free resources in the Sacramento region at a lower cost.

We are confident this revised Application meets and exceeds the requirements of Section 10-115 and urge the Commission to adopt it at the February Commission Business Meeting.<sup>5</sup>

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<sup>5</sup> Section 10-115(c) of the 2019 Building Standards expressly states that community shared solar electric generation systems “which demonstrate to the Commission’s satisfaction that all of the requirements *specified* in Section 10-155 will be met, *shall be approved.*” (emphasis added).

# Application

## 1.0 Introduction

SMUD (Sacramento Municipal Utility District) is applying to the California Energy Commission (Commission) to be an administrator of a program to meet the requirements under Section 10-115 of the 2019 California Building Standards (2019 Building Standards). Section 10-115 establishes the requirements that must be met for a Community Shared Solar Electric Generation System to be used by a builder/developer as a compliance alternative to the onsite photovoltaics required by Section 150.1(b)1, which states:

“10-115(b): **Application for Commission Approval.** Any entity may apply to the Commission for approval to administer a community shared solar electric generation system and/or battery storage system to provide partial or total compliance with the onsite solar electric generation system and/or battery storage system required by Section 150.1(b)1 of Title 24, California Code of Regulations, Part 6. The application shall demonstrate to the Commission’s satisfaction that each of the requirements specified in Section 10-115(a)1-6 will be met and shall include detailed explanation of the actions that will be taken by the applicant to ensure that each requirement is met over the period of time specified in Section 10-115(a)4 for each building for which a partial or total offset is used to demonstrate compliance. All applicants have the burden of proof to establish that their application should be granted. The Commission shall have the authority to not approve any application that the Commission determines to be inconsistent with the requirements of Section 10-115.”

This document is SMUD’s application to be an administrator of Section 10-115 through our “Neighborhood SolarShares® program”, hereinafter referred to also as the SolarShares program, which is designed to provide participating builders an alternative to onsite photovoltaics in their participating communities, including making a solar option available to residential projects that may not be conducive to onsite solar.

## 1.1 Definitions

**Participating home** means a residential building or dwelling unit that is receiving SolarShares Program allocated shares from SMUD’s solar generation, hereinafter referred to as SolarShares, from a Commission-approved Community Shared Solar Generation System, in compliance with the 2019 Building Standards.

**Participating builder** means a builder or developer who signs a legal agreement with SMUD to meet the requirements of the Commission-approved SolarShares program so

that buildings or dwelling units built by the builder or developer comply with the Exception to Section 150.1(b)1 of the 2019 Building Standards.

**Participating community** means a group of co-located residential buildings or dwelling units built by a participating builder, which comply with the Exception to Section 150.1(b)1 of the 2019 Standards through the Commission-approved SolarShares program.

**Participating customer** means a SMUD customer for energy service that occupies, either as an owner or tenant, a participating home during the 20-year period starting with the first day of occupancy by the first customer that takes service in the participating home. Each participating customer is obligated to take service from SMUD under the Commission-approved SolarShares program for the SolarShares that were allocated to the participating home to comply with the 2019 Building Standards.

## 2.0 Program Administrator

The Section 10-115 Administrator of the Neighborhood SolarShares program will be SMUD.

## 3.0 Program Description

**Agreement:** A developer or builder<sup>6</sup> participating in the Neighborhood SolarShares program (participating builder) will sign a legal agreement with SMUD enrolling a group of residential buildings (participating community) in the Commission-approved SolarShares program, to comply with the 2019 Building Standards without the need to install photovoltaic systems on the building sites of the participating homes. The agreement will include provisions governing assignment to new builders as the participating community is built out. The term of the agreement will extend from signing until at least 20 years after the last participating home in the participating community first receives electrical service and begins participation in the SolarShares program.<sup>7</sup>

The participating homes in the participating community will be enrolled in the SolarShares program and will begin participation when the original owners or tenants (participating customers) first occupy and start receiving electric service at the participating home. The participating home and all owners and tenants who occupy and

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<sup>6</sup> Note: the terms “builder” and “developer” are intended to cover whomever is making the decision for the subdivision, development, or homes to sign the Agreement at the time that participation in the Neighborhood SolarShares program is committed.

<sup>7</sup> A sample agreement is provided in Appendix D.

take electrical service (participating customers) over the 20-year program timeframe will be required to participate in the SolarShares program<sup>8</sup>.

**Pricing:** Participating customers will pay for the SolarShares generation shares that are allocated to their participating home through a SolarShares Charge on their SMUD bill. The charge will be escalated at a fixed escalation rate over the 20 years (See Appendix A for details). The participating customer's SMUD bills will also be reduced by the value of SolarShares Credits associated with generation allocated to the participating home. SolarShares Credits will be escalated at the same rate as SolarShares Charges (note that the escalation rate may be zero). SolarShares Charges will be explicitly determined so that participating customers will receive a base net benefit from participation of \$10 dollars per kW per year of participation, to meet section 10-115(a)3 requirements for participating customer net benefit<sup>9</sup>.

SolarShares pricing is designed to provide participating customers a net benefit over the 20-year term for the participating home. A participating builder may buy down the cost of the SolarShares generation allocated to the participating home through an up-front origination fee paid to SMUD. If a buydown is provided, SMUD will apply the fee to reduce the SolarShares Charge (or increase the SolarShares Credit) to participating customers to give them a larger net benefit on the participant's bills in each year of the 20-year term.<sup>10</sup>

**Sizing:** Participating builders will provide the Title 24 energy simulations necessary to determine the required minimum PV system size for each residence. SMUD will allocate SolarShares generation shares equal to the time dependent value (TDV) energy generation determined by Commission-approved compliance software that would be required if the participating home complied with the 2019 Building Standards through installation of an onsite PV system.

If at any time during the SolarShares program timeframe, onsite (behind-the-meter) generation is installed for a participating home, SolarShares generation shall be credited to energy bills by SMUD first, before any "behind the meter" generation. SMUD will not adjust the SolarShares generation allocated for the participating home if "behind-the-meter" generation is installed. The SolarShares generation allocated will

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<sup>8</sup> Participating homes will be bound to the program by recorded covenants, conditions and restrictions (Declaration of CC&Rs) obligating each SMUD customer who occupies the participating home over the 20-year period to take service from SMUD through the Neighborhood SolarShares program for the shares allocated to the participating home in order to comply with the 2019 Building Standards.

<sup>9</sup> Outside of the SolarShares Charges and Credits that guarantee participant net benefit, Neighborhood SolarShares customers are subject to SMUD's Rates, Rules and Regulations as amended by its Board of Directors from time to time.

<sup>10</sup> See Appendix A for a more detailed description of program pricing.

remain for the full SolarShares 20-year program timeframe for the participating home, regardless of “behind-the-meter” kWh generation or onsite electrical load changes.

**Supply:** SMUD will supply the SolarShares generation from a portfolio of existing solar resources and resources under development.<sup>11</sup> The participating resource portfolio, which will provide the SolarShares generation allocated to the participating homes in the participating community, will be communicated to participating customers through SMUD marketing materials. The participating resources in SMUD’s Neighborhood SolarShares program will be located within SMUD’s service territory. The allocation of SolarShares generation by time period to a participating customer will not change for that participating home over the 20-year period. See Appendix B for supply details.

Any SolarShares generation that is allocated to participating homes will not be otherwise allocated or used for any other purpose.<sup>12</sup> The generation from the participating home resource portfolios will be metered, and the metered data will be tracked in the Western Renewable Energy Generation Information System (WREGIS) and associated bundled Renewable Energy Credits (RECs) will be properly retired in a dedicated WREGIS subaccount. RECs will only be retired from resources that are constructed after January 1, 2020 and that are 20 MW or less in size.<sup>13</sup> The Neighborhood SolarShares program will also be certified by the Center for Resource Solutions and audited annually, as specified by the Green-e program requirements, or certified by an equivalent or stronger verification protocol.<sup>14</sup>

## 4.0 Demonstration that Program Meets Requirements

The Neighborhood SolarShares program meets the requirements specified in Section 10-115(a)1-6, as explained below.

**115(a)1. Enforcement Agency.** The community shared solar electric generation system and/or community shared battery storage system shall be installed and available for enforcement agency site inspection, no later than the point in time the enforcement agency must physically verify compliance of the building, which would otherwise be required to have an onsite solar electric generation and/or

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<sup>11</sup> See Appendix B for a description of SMUD’s initial portfolio of resources and estimate of expected SolarShares demand compared to the supply provided by those resources.

<sup>12</sup> This does not apply to the reduction of retail sales allowed by SB 350 and California Energy Commission regulations for the RPS program, application to the California Air Resources Board’s Voluntary Renewable Energy Program to have VRE allowances retired to ensure GHG reductions, and potential similar uses that do not constitute double use of the generation or environmental attributes (e.g. – reflecting the generation appropriately on the Power Content Label).

<sup>13</sup> Except in rare circumstances in which such resources may not be available, such as delays or forced outages in new, 20-MW or less resources that leave available supply less than program demand. SMUD does not anticipate these circumstances to occur often going forward.

<sup>14</sup> See Appendix C for a description of the WREGIS and CRS protocols.

battery storage system, and shall not cause delay in the process of enforcement agency review and approval of that building. The enforcement agency shall have jurisdiction and facilitated access to make site inspections. All documentation for the community solar electric generation system and/or community solar battery storage system that is required to demonstrate compliance for the building shall be completed prior to building permit application.

SMUD will ensure that documentation is provided to the enforcement agency for any resources used for the Neighborhood SolarShares program to ensure compliance with the Title 24 Building Energy Standards. SMUD will provide information regarding the initial resources to be used to allocate shares to participating homes, including an Allocation Table that shows how SolarShares resources will be allocated to a participating home by time-of-day period, as illustrated in Appendix B<sup>15</sup>. The participating home resource portfolio used to allocate SolarShares and the Allocation Table for each participating home will be communicated to prospective buyers of participating homes and to participating customers through SMUD marketing materials. The allocation table that governs SolarShares generation allocation to specific participating homes will not change over the 20-year term for that participating home (although the underlying resource portfolio may change). Any changes to the resources available to the program will meet the commitments made in this application and requirements of section 10-115. SMUD will inform the Commission and participating builders of changes to the resources available to the program.

SMUD will ensure that program resources used to allocate SolarShares to a participating home are available for inspection no later than when the Enforcement Agency would otherwise inspect that home for compliance with the Standards. SMUD will provide information pertaining to the performance characteristics of allocated resources to ensure that they meet or exceed the performance characteristics that would be required if the participating home was required to meet the on-site PV requirements of the 2019 Standards as simulated by Commission-approved compliance software. SMUD will work with local Enforcement Agencies to schedule inspections and supply required documentation as early as the Enforcement Agency requires, to avoid any delay in the review and approval of participating homes.

**115(a)2. Energy Performance.** The community shared solar electric generation system and/or community shared battery storage system shall be demonstrated to provide the same or better energy performance equal to the partial or total compliance with the energy performance of the onsite solar electric generation

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<sup>15</sup> See Appendix B for a complete description of SMUD's initial portfolio of resources and estimate of expected Neighborhood SolarShares program demand compared to the supply provided by those resources.

and/or battery storage system that would otherwise have been required for the building, computed by compliance software certified for use by the Commission.

SMUD will work with Commission staff to demonstrate to the staff's satisfaction that SolarShares generation allocations for participating homes will equal or exceed the TDV Energy generation simulated by the Title 24 compliance software for the onsite PV system that otherwise would be required if the home did not participate in SolarShares. SMUD also with work with Commission staff to identify programming changes that will be necessary to enable Title 24 compliance software to model and determine the size of SolarShares allocations needed for each participating home. This will be done in a manner that is easily grasped by software users and is supported by compliance documentation that effectively communicates to software users and local building officials how compliance will be demonstrated and checked. SMUD will work with the participating builders to ensure that they properly perform and provide the Title 24 compliance simulations and documentation necessary to demonstrate compliance. SMUD will then ensure that the SolarShares generation allocated to that participating home equals or exceeds that determined by the compliance software to match the TDV Energy generation simulated for the onsite PV system.

SMUD believes the performance of SolarShares participating home resource portfolios will generate more TDV Energy compared to onsite PV systems. The resource portfolio approach allows SMUD to guarantee solar output, even on cloudy and rainy days, which will not occur for onsite systems. In addition, regular, centralized maintenance of the allocated program sources will ensure better performance than onsite systems regarding panel cleanliness, and potentially regarding component failure and repair.

SMUD will continuously track SolarShares generation from the allocated program resources and provide, or have available, documentation to demonstrate actual SolarShares generation allocated to participating homes in participating communities, so that the Commission can verify that simulated energy performance has been achieved.

**115(a)3. Dedicated Building Energy Savings Benefits.** The community shared solar electric generation system and/or community shared battery storage system shall provide energy saving benefits directly to the building that would otherwise have been required to have an onsite solar electric generation system and/or battery storage system. The energy savings benefits shall be allocated from the total resource of the community shared solar electric generation system and/or community shared battery storage system in a manner demonstrated to be equivalent to the reductions in energy consumption that would have resulted from the onsite solar electric generation system and/or battery storage system that is otherwise required by Section 150.1 of Title 24. The energy savings benefits allocated to the building shall be in the form of:

- A. actual reductions in the energy consumption of the dedicated building;
- B. utility energy reduction credits that will result in virtual reductions in the building's energy consumption that is subject to energy bill payments, or
- C. payments to the building that will have an equivalent effect as energy bill reductions.

The reduction in the building's energy bill resulting from A, B, or C above shall be greater than the added cost to the building resulting from the building's share in the community shared solar or battery system.

SMUD will be using Option B or C above for the Neighborhood SolarShares program. SMUD's pricing in the Neighborhood SolarShares program will ensure that participating customers receive at least a \$10 per kW net benefit for each year over the 20-year term of participation for each participating home. The monthly energy bills for each participating customer will include a SolarShares Charge. Offsetting this monthly SolarShares charge will be SolarShares Credits for each retail rate time period (appearing as negative numbers on the bill), calculated by multiplying kWh's of SolarShares generation allocated in that retail rate time period to the participating home by an appropriate rate to ensure net benefit in each year.<sup>16</sup> Appendix A provides a more detailed pricing explanation.

The participating customer's SolarShares Charge may be reduced (bought down), or the SolarShares Credits increased commensurately, to increase the participating customer's net benefit in each year above the guaranteed \$10 per kW level. This option occurs through a participating builder contribution, as a one time, up front, origination fee to SMUD, based on a participating home's allocated SolarShares generation.<sup>17</sup> The buydown amount may be unique for each participating home based on the size of the allocated SolarShares generation that will be necessary to meet or exceed the TDV generation that would have been required by an onsite system for that home, and the amount of annual net-benefit above the base level that each builder may decide to provide. SMUD marketing materials and tariff sheets will clearly and simply communicate charges and credits to participating customers.

**115(a)4. Durability.** The community shared solar electric generation system and/or community shared battery storage system shall be designed and installed to provide the energy savings benefits to the dedicated building specified in Section 10-115(a)3 for a period of no less than twenty (20) years.

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<sup>16</sup> SMUD may initially use an "off-bill" system to apply the SolarShares Charges and Credits and the \$10/kW or greater net benefit to participating customers.

<sup>17</sup> See Appendix A for a more detailed description of program pricing.

SMUD will administer the Neighborhood SolarShares program to reliably meet all section 10-115 requirements for the period necessary for all participating homes to receive compliant energy savings benefits for the 20-year duration for each participating home. SMUD will require participating builders in the Neighborhood SolarShares program to sign an agreement with SMUD that will bind each participating home to the Neighborhood SolarShares program for a term of at least 20 years, starting with initial SolarShares electric service to the participating home.<sup>18</sup> The agreement will require the participating builder to include appropriate covenants, conditions and restrictions (in a Declaration of CC&Rs) in the deed transferring title for each participating home that is sold and properly make record of such in the county or city where the participating home is located. The Declaration of CC&Rs shall run with the land for a term of at least 20 years starting from date of first occupancy (specifically -- start of electric service) of the participating home, and provide SMUD, as a third-party, the right to enforce the CC&Rs as equitable servitudes. Each customer of electricity service that occupies the participating home during this 20-year period, either as an owner or tenant (participating customers), will be automatically enrolled in the Neighborhood SolarShares Program when they move into and start electric service in the participating home. Pursuant to the CC&Rs, the participating customer is required to take service under the SolarShares program for the SolarShares generation allocated to the participating residence to comply with the 2019 Building Standards. The CC&Rs bind the participating home to the program – the original occupant and subsequent occupants cannot withdraw from the SolarShares program for the 20-year term for that participating home.

**115(a)5. Additionality.** The community shared solar electric generation system and/or community shared battery storage system shall provide the energy savings benefits specified in Section 10-115(a)3 exclusively to the dedicated building. Those energy savings benefits shall in no way be attributed to other purposes or transferred to other buildings or property.

The SolarShares generation allocated to participating homes will not be allocated to or used for any other purpose, including SMUD's or any other entity's RPS compliance, resale of RECs or renewable generation to any other person or entity, or any other mandatory or voluntary renewable electricity claim that constitutes double use. SMUD will track and retire bundled (Product Content Category 1) RECs associated with allocated generation on behalf of the participating home in specific WREGIS subaccounts established for the SolarShares program, ensuring that the PCC1 RECs are used once and only once and cannot be used for other purposes. PCC1 RECs will be created monthly in WREGIS, based on 8760 hours/year of metered data from each

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<sup>18</sup> A sample Agreement is provided in Appendix D including a sample draft of the required SolarShares CC&R provisions.

allocated resource in participating home resource portfolios. The meter data will be independently submitted to WREGIS, so that the PCC1 RECs that SMUD claims can be verified against the meter information, ensuring no double counting and matching of actual generation to the performance requirements for SolarShares generation allocated to participating homes. SMUD will retire PCC1 RECs on behalf of SolarShares Program participating homes annually in a “Neighborhood SolarShares” retirement account, in an amount equal to the total SolarShares generation allocated to participating homes.

To summarize, SMUD will:

1. Register all the program resources used for supplying the Neighborhood SolarShares program in WREGIS.
2. Ensure that the program resources have a Qualified Reporting Entity that is uploading metered generation data into WREGIS on a monthly basis.
3. Create PCC1 RECs for the program resources based on the metered data and transfer the bundled RECs that correspond to the total amount of annual, SolarShares generation allocated to participating homes, and transfer those RECs to a Neighborhood Solar Shares retirement account each year, thereby ensuring that the PCC1 RECs cannot be used for any other purpose.

SMUD will ensure that there are enough PCC1 RECs in WREGIS to meet this retirement requirement by adding resources to participating home resource portfolios and registering them in WREGIS before enrolling additional participating homes in the SolarShares program. Any program resource portfolio generation that is not allocated to participating homes will be tracked separately in WREGIS.

SMUD will also get the Neighborhood SolarShares program certified by the Center for Resource Solutions to meet the applicable Green-e standard for voluntary renewable programs (or be certified by an equivalent or stronger verification protocol). Green-e certification includes annual auditing of the program to verify that Green-e requirements for resource eligibility and additionality are met.<sup>19</sup>

SMUD expects to subtract the SolarShares generation allocated to participating homes in the Neighborhood SolarShares program, to the extent that generation meets the requirements of Public Utilities Code Section 399.30(c)(4) and Commission RPS regulations, from SMUD’s general retail sales prior to calculation of SMUD’s obligation in the RPS program, to avoid double procurement of renewable generation. Also, consistent with the California Air Resources Board’s Voluntary Renewable Energy (VRE) Program rules, SMUD will have VRE carbon allowances retired on behalf of participating homes. Compliance with PUC section 399.30(c)(4), Commission

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<sup>19</sup> See Appendix C for a description of the WREGIS and CRS protocols to avoid double use and double counting.

regulations and participation in ARB's VRE program will ensure that GHG reductions, and renewable claims are legitimate and do not violate the Section 10-115 additionality provision.

**115(a)6. Accountability and Recordkeeping.** Applicants for Commission approval of community shared solar electric generation systems and/or community shared battery storage systems shall be accountable to all parties who relied on these systems for partial or total compliance with the onsite solar electric generation and/or battery storage system that would otherwise be required, including but not limited to builders of the buildings, owners of the buildings, enforcement agencies, and the Commission. Recordkeeping regarding compliance with the requirements in Sections 10-115(a)1-6 shall be maintained over the period of time specified in Section 10-115(a)4 for each building for which the community shared solar electric generation or battery storage system is used to demonstrate partial or total compliance. Access to these records shall be provided to any entity approved by the Commission for auditing compliance with these requirements.

SMUD commits to keeping the required records for demonstrating compliance with Sections 10-115(a)1-6 for each participating home for at least 20 years beginning with first occupancy of the participating home, meeting the period specified in Section 10-115(a)4. With this application, SMUD commits legally to provide access to these records to the Commission or any other entity that the Commission approves to audit compliance with these requirements. Any customer-specific records or information will be subject to confidential treatment.

SMUD will continuously track participation in the program for all participating homes and participating customers through our billing systems. SMUD will also track the SolarShares generation allocated to participating homes and provide, or have available, documentation to demonstrate participation throughout the 20-year period, as well as the actual generation and allocation of that generation to participating homes, so the persons identified in section 10-115(a)(6) can verify that energy performance and compliance with each 10-115 requirement is assured. Each SolarShares resource in participating home resource portfolios will have metered data provided to SMUD and to WREGIS, with tracking of metered generation and bundled and retired RECs maintained in separate WREGIS subaccounts, to meet the obligations of SolarShares generation allocated to participating homes. SMUD will provide documentation regularly to the Commission of any changes in the resources available to the program, including information necessary to demonstrate continued compliance.

# APPENDIX A: Neighborhood SolarShares Pricing Documentation

Pricing for SMUD’s Neighborhood SolarShares program will consist of two main components:

- A SolarShares Charge that is applied to the participating customer’s electric bills; and
- SolarShares Credits that reflect the SolarShares generation allocated to the participating home that are credited to the participating customer by rate period.

Participating customers’ energy bills will clearly show the monthly SolarShares impact on their bills, based on the calculated SolarShares Charges and the SolarShares Credits.<sup>20</sup> Two mock customer bill examples are shown below – one summer month bill and one winter month bill – illustrating the SolarShares impact, based on the SolarShares credits and charges added to the customer bill. This example is representative only and does not show actual charges. Bill examples may be simplified to clearly show the bottom-line impact of the program or refer participating customers to alternative information showing that impact.

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<sup>20</sup> SMUD may initially use an “off-bill” system to apply the SolarShares Charges and Credits and the \$10/kW/year or greater net benefit to participating customers.



P.O. Box 15830, Sacramento, CA 95852-0830  
 smud.org

**Your Electric Bill**

Phone Inquiries: 1-888-742-7683  
 Power Outages: 1-888-456-7683

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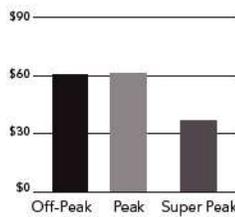
ALBIE A. CUSTOMER  
 Account Number: 12345678  
 Bill Issue Date: 08/06/2019

Location: 1145 ANY WY.  
 SACRAMENTO 95864  
 Billing Period: 07/05/19 - 08/03/19 (30 Days)  
 Cycle: 01 | Location Number: 1234567  
 Rate: Time of day (5-8pm)

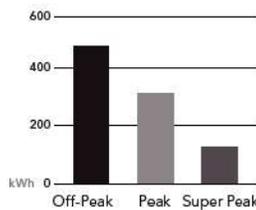
Current Charges, Due 09/02/19 \$144.99  
**Total Amount Due: \$144.99**

**Energy Cost & Usage**

**Cost by Time-of-Day**



**Usage by Time-of-Day**



**Usage Summary**

This Bill Period	Last Bill Period	Same Bill Period Last Year	Usage Difference
\$144.99 (917 kWh)	\$171.99 (792 kWh)	\$203.20 (1,113 kWh)	↓17% Lower than last year

**Meter Summary**

Meter	Usage	Type	Monitor your account on
20101019	917	Total kWh	smud.org/myaccount

**Electricity Charges**

Item	Usage	Type	Rate	Amount
Electricity Usage	487	Summer Off Peak kWh @	0.122100	59.48
Electricity Usage (12pm-12pm)	300	Summer Peak kWh @	0.168800	60.63
Electricity Usage (5-8pm)	130	Summer Super Peak kWh @	0.297000	38.61
System Infrastructure Fixed Charge*				20.30
Sacramento City Tax*				15.16
State Surcharge*				0.53
<b>A) TOTAL ELECTRIC SERVICE CHARGES/CREDITS</b>				<b>\$194.71</b>
<b>SolarShares Charges</b>				
SolarShares Credit				-113.63
SolarShares Charge				63.91
<b>SOLARSHARES SUBTOTAL</b>				<b>-\$49.72</b>
<b>A) TOTAL ELECTRIC SERVICE CHARGES/CREDITS</b>				<b>\$144.99</b>



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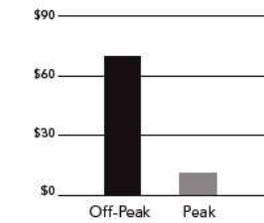
ALBIE A. CUSTOMER  
Account Number: 12345678  
Bill Issue Date: 02/06/2019

Location: 1145 ANY WY.  
SACRAMENTO 95864  
Billing Period: 01/05/19 - 02/03/19 (30 Days)  
Cycle: 01 | Location Number: 1234567  
Rate: Time of day (5-8pm)

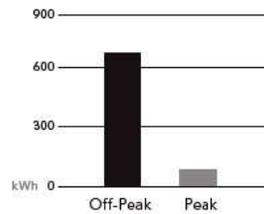
Current Charges, Due 03/02/19 **\$150.23**  
**Total Amount Due: \$150.23**

### Energy Cost & Usage

#### Cost by Time-of-Day



#### Usage by Time-of-Day



### Usage Summary

This Bill Period	Last Bill Period	Same Bill Period Last Year	Usage Difference
\$150.23 (737 kWh)	\$171.99 (792 kWh)	\$203.20 (1,113 kWh)	↓17% Lower than last year

### Meter Summary

Meter	Usage	Type	Monitor your account on
20101019	737	Total kWh	smud.org/myaccount

### Electricity Charges

Item	Usage	Type	Rate	Amount
Electricity Usage	662	Winter Off Peak kWh @	0.101500	67.19
Electricity Usage (5-8pm)	75	Winter Peak kWh @	0.168800	10.51
System Infrastructure Fixed Charge*				20.30
Sacramento City Tax*				15.16
State Surcharge*				0.53
<b>A) TOTAL ELECTRIC SERVICE CHARGES/CREDITS</b>				<b>\$113.69</b>
<b>SolarShares Charges</b>				
SolarShares Credit				-27.37
SolarShares Charge				63.91
<b>SOLARSHARES SUBTOTAL</b>				<b>\$36.54</b>
<b>A) TOTAL ELECTRIC SERVICE CHARGES/CREDITS</b>				<b>\$150.23</b>

### Understanding the bills:

- The “SolarShares Credit” line summarizes the monthly SolarShares bill credits for each Time-Of-Day (TOD) period, shown as a “credit” or negative number on the bill.
- The SolarShares Charge is a flat monthly charge proportional to the size of the SolarShares program generation share allocated to the participating home.
- The SOLARSHARE SUBTOTAL is the sum of the SolarShares Credits and the SolarShares Charge.
- The TOTAL ELECTRIC SERVICE CHARGES/CREDITS line shows the final monthly charges, including the charges and credits calculated elsewhere on the customer’s bill combined with the impact of the SolarShares charges for the month.

The Neighborhood SolarShares program in this example reduces the overall bill in the example summer month by about \$50 but increases the overall bill in the lower-generation winter months by about \$37. Since the SolarShares charges are fixed per month in each year, and allocated energy credits vary by month and by TOD value, participants are not guaranteed to see net benefit in each month they participate but are guaranteed to see net benefit of at least \$10/kW in each year they participate, or at least \$200 per kW over 20 years. Actual customer usage and actual rates will change over time, but these changes are disconnected from the SolarShares pricing, which guarantees a net benefit even as rates differ from expectations.

If the SolarShares generation exceeds a participating customer's monthly usage, the participating customer will accrue a net credit that can be applied to future bills. SMUD's standard retail electricity pricing will apply each month to any remaining energy used – after accounting for the participating customer's allocated SolarShares generation and any accrued SolarShares Credits.

The SolarShares Charges and Credits are calculated to provide a net benefit to participating customers in each year. The SolarShares Charge is calculated by:

1. Establishing an initial base cents per kWh amount to recover energy and program costs and a variety of ancillary and fixed costs as in SMUD's standard retail rates;<sup>21</sup>
2. Reducing this base amount so that when SolarShares Charges are combined with SolarShares Credits, participating customers see at least a \$10 per kW net benefit each year;
3. Multiplying the result (in each year) by the annual allocated energy for the participating home; and
4. dividing that total by 12 to create a flat monthly charge for each year.

These initial charges then will escalate by a fixed amount per year for the 20-year term (for example, 2% annual escalation, or 0% annual escalation), providing certainty about program costs to participating customers.

The SolarShares Credits escalate at an identical rate to SolarShares Charges and are calculated by:

1. Starting with the same base cents/kWh amount with which SolarShares Charges begin; and

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<sup>21</sup> These latter costs include for example: ancillary services, transmission and distribution costs, public goods charges and general fixed costs recovered in the variable energy components of retail rates. SolarShares credits effectively remove these costs from participant bills, so they must be included in the SolarShares Charges or participants would avoid paying for them.

2. Multiplying the result (in each year) by the allocated energy in each time period for the participating home.

SolarShares credits then escalate over time on the same path as SolarShares Charges, ensuring that the base at least \$10 per kW annual net benefit is present in each subsequent year<sup>22</sup>.

A participating builder may agree to an upfront payment to SMUD in order to provide higher net benefits in each year to participating customers in a development, allowing participating builders to show a better “customer experience” to prospective homebuyers. SMUD applies the buydown to participating customers by lowering the SolarShares Charge in each year (or increasing the credits by a commensurate amount).

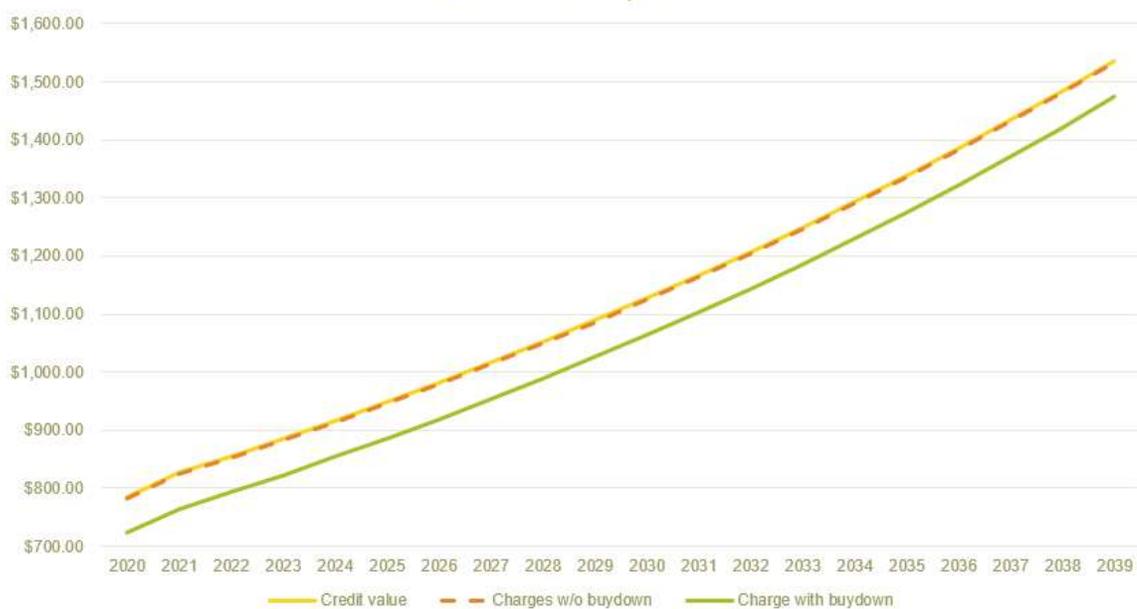
The following chart illustrates the optional buydown for a simulated 3kW system that delivers 6516 kWh annually, showing the cumulative costs over 20 years compared to charges without the buydown. The chart uses an example fixed 3.5% annual escalation for SMUD’s SolarShares Charges and Credits. Note that SMUD may structure SolarShares Charges and Credits without escalation, similar to flat 20-year PV pricing, while maintaining the at least a \$10 per kW annual net benefit.

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<sup>22</sup> Outside of the SolarShares Charges and Credits that guarantee participant net benefit, Neighborhood SolarShares customers are subject to SMUD’s Rates, Rules and Regulations as amended by its Board of Directors from time to time.

# 20 Year customer experience

3kW customer experience



# APPENDIX B: Neighborhood SolarShares Supply Documentation

SMUD will supply the Neighborhood SolarShares program from a portfolio of new, up to 20 MW in size solar resources under development, all located within the SMUD service area.<sup>23</sup> While SMUD is still including the larger Rancho Seco II resource in our portfolio and existing Feed-in-Tariff (FIT) projects in our supply portfolio, SMUD will only retire RECs from resources that are new and 20 MW or less unless there is program demand that cannot be met from these resources at a particular point of time. For example, SMUD's Wildflower resource is not scheduled to come online until November 2020, and any program demand before that resource is available SMUD would supply from the FIT resources. These existing resources are included in the portfolio as a bridge until new resources come on-line and as a backup in case new resources are unavailable due to unexpected outages. Similarly, SMUD continues to include the larger Rancho Seco II project in the portfolio as a backup in case other resources are unavailable to serve program demand. SMUD is confident that few, if any, existing resource RECs or RECs from resources larger than 20 MW will need to be retired for the program.

The policies to use resources only within our service territory and from resources no larger than 20 MW mirror the maximum size limit and location requirements for resources in the CPUC Green Tariff Shared Renewable program. They are also consistent with the parameters in the Coalition for Community Solar Access November 2016 publication "Community Solar Policy Decision Matrix", which recommends resources be within a utility service area and no more than 20 MW in size. This voluntary program improvement recognizes that an Application can go beyond the technical language in the 2019 Building Standards, which does not include restrictions on the location and size of resources being used for the community solar option, to fit within a stricter definition of "community solar".

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<sup>23</sup> The 2019 Building Standards have no location, maximum size, or minimum age requirements for community solar supply resources, recognizing the need for flexibility when matching new residential construction to supply that is not co-located. SMUD is voluntarily restricting supply resources to being located in our service territory, no more than 20 MW, and built after January 1, 2020. These constraints are consistent with the geographic boundaries for community solar supply resources recommended by the Coalition for Community Solar Access in "*Community Solar Policy Decision Matrix: Guidance for Designing Community Solar Programs*", November 2016. SMUD does not believe that these constraints should necessarily be applied on a statewide basis. Other utility applicants may have smaller service territories making a service territory restriction too inflexible. Non-utility applicants may not have "service areas" in the same sense as a utility. In some cases, resources larger than 20 MW may be the only viable option for a community shared solar program.

An allocation table for each program resource, which provides the percentage of annual generation occurring in each time of day period in each day of the year, will be established using historical generation from existing resources and estimated generation from resources under construction. Allocation tables for each portfolio resource are then combined to establish an aggregate allocation table for the participating home resource portfolio. The participating home resource portfolio allocation table that applies to each participating home in the original builder agreement will be attached to the agreement. The allocation table governing SolarShares generation to a participating home will not change for the term of participation for that participating home.

The participating home resource portfolio allocation table is used to specify how much SolarShares generation will be allocated to a participating home in each time of day period to ensure that the required SolarShares generation results in the TDV energy needed for T24 compliance are actually allocated. An example monthly summary Participating Home Resource Allocation Table is illustrated below:

<b>Example Participating Home Resource Portfolio Allocation Table (Monthly Summary)</b>					
<b>Row Labels</b>	<b>Summer SuperPeak</b>	<b>Summer Peak</b>	<b>Summer OffPeak</b>	<b>Winter Peak</b>	<b>Winter OffPeak</b>
January	0.00%	0.00%	0.00%	0.00%	4.54%
February	0.00%	0.00%	0.00%	0.02%	5.59%
March	0.00%	0.00%	0.00%	0.10%	7.53%
April	0.00%	0.00%	0.00%	0.25%	9.69%
May	0.00%	0.00%	0.00%	0.47%	11.55%
June	0.54%	3.67%	7.84%	0.00%	0.00%
July	0.56%	4.04%	7.43%	0.00%	0.00%
August	0.38%	3.90%	6.92%	0.00%	0.00%
September	0.10%	3.11%	6.19%	0.00%	0.00%
October	0.00%	0.00%	0.00%	0.00%	7.32%
November	0.00%	0.00%	0.00%	0.00%	4.75%
December	0.00%	0.00%	0.00%	0.00%	3.50%
<b>Totals</b>	<b>1.58%</b>	<b>14.72%</b>	<b>28.38%</b>	<b>0.84%</b>	<b>54.48%</b>

The portfolio of resources available to the program may be updated over time to ensure continued compliance with 2019 Building Standard requirements or to add new supply in response to increased program participation. Changes in the resources available to the program will not alter the allocation table for existing participating homes, but a revised participating home resource portfolio allocation table may be established for new participating homes after a change has been made to the portfolio of resources available to the program. One reason that a change may need to be made is that the Green-e program currently requires participating resources to be no more than 15

years old, which would require SMUD to remove older resources and to add updated resources to the Participating Home Resource Portfolio Allocation Table.<sup>24</sup>

As resources are added to or subtracted from the portfolio of resources available to the program, a new resource allocation table and new aggregate participating home Resource Portfolio Allocation Table are established. A revised participating home resource allocation table may or may not measurably change the amount of SolarShares generation allocated to participating homes to ensure the required TDV Energy generation is allocated.<sup>25</sup>

SMUD will update the Commission regularly regarding the resources available to the program as SolarShares generation is allocated to participating homes, and as the resources available to the program is expanded or altered, including providing the Commission updated analysis for a revised Participating Home Resource Portfolio Allocation Tables.

SMUD will work with the Commission to demonstrate to the staff's satisfaction that revised SolarShares generation allocations for participating homes will equal or exceed the TDV Energy generation simulated by the Title 24 compliance software for the onsite PV system that otherwise would be required if the home did not participate in SolarShares. SMUD will also work with Commission staff to identify programming changes that will be necessary to incorporate the revised SolarShares generation resources to enable Title 24 compliance software to model and determine the size of SolarShares allocations and any necessary compliance documentation updates. SMUD will work with the participating builders to ensure that once compliance software and compliance documentation has been updated to incorporate the revised SolarShares resources, builders properly perform and provide the Title 24 energy compliance simulations and documentation for demonstrating compliance for the participating homes served by the new resources. SMUD will ensure that the SolarShares generation allocated to that participating home equals or exceeds that determined by the updated compliance software to be necessary to match the TDV Energy generation simulated by the compliance software for the onsite PV system.

All SolarShares generation allocated to participating homes will be recorded and conveyed in the monthly bills of participating customers. SMUD will accumulate this data throughout the year and provide an annual report for each participating home to

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<sup>24</sup> Green-e may be willing to provide an exception to resource age requirements for the Neighborhood SolarShares program, allowing resources up to 20 years old and thereby reducing the need for updated resources.

<sup>25</sup> Note that changes to the resources available to the program do not affect the pricing of current participating homes when the change is made. Each participating builder has a determined buydown amount based on the participating home resource portfolio as it stands when a participating home enters the program. This buydown amount and pricing does not change for the term of participation for that participating home. Participating builders may have to pay a revised buydown amount for new participating homes as the participating home resource portfolio changes, but the buydown amount is not expected to be subject to major changes.

demonstrate that the performance required to comply with the Standards (i.e., TDV compliance for each participating home) and section 10-115 requirements have been met. The amount of SolarShares generation allocated to participating homes will not exceed or be less than the amount of resource generation recorded in WREGIS SolarShares subaccounts in any reporting year. An annual Power Content Label will be published and made publicly available.

The list of solar generators that are used to supply the program and the participating homes resource portfolio will be documented and submitted to the Commission and will be communicated to participating builders and customers as needed. The following table provides the initial set of solar generators available for SMUD's Neighborhood SolarShares program allocation. Of these, the first 29 resources listed amount to 100 MW of capacity from resources less than 20 MW in size within our service territory that are currently on-line and available for reallocation to initial participating homes. These resources serve as a bridge to ensure the ability to supply initial enrollment in the program, and a backup in case new resources being developed are not available as needed. The remaining two resources are under development today, in part to provide supply for SMUD's SolarShares programs, and will provide an additional 173 MW of capacity available to the program by 2021 to ensure supply for ongoing enrollment with new resources. While the larger Rancho Seco II project is included in the portfolio, SMUD commits to retiring RECs only from the smaller Wildflower project to the maximum extent possible (SMUD anticipates 100% REC retirement from Wildflower for several years after it comes on-line).

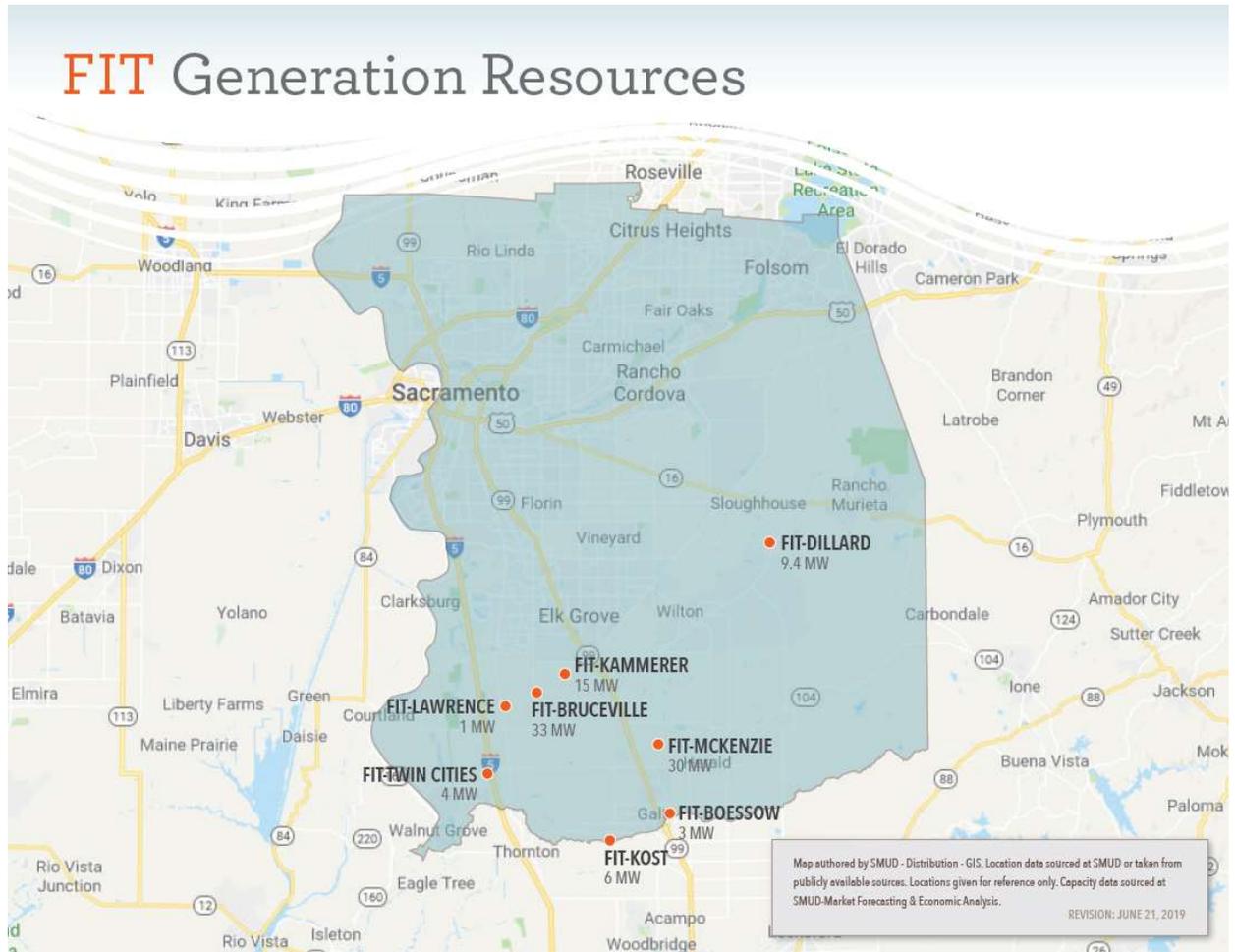
	Generator Name	Street Address	County	City	Zip Code	Online Date	Capacity (MW)	CEC RPS ID	WREGIS ID
Great Valley Feed In Tariff Projects	RE-Bruceville -1	11281 Bruceville Road	Sacramento	Elk Grove	95757	2/2012	5.000	61271A	W2531
	RE-Bruceville -2	11282 Bruceville Road	Sacramento	Elk Grove	95757	2/2012	5.000	61272A	W2531
	RE-Bruceville -3	11283 Bruceville Road	Sacramento	Elk Grove	95757	2/2012	5.000	61271A	W2531
	SPVE Point Pleasant 1	6150 Point Pleasant Rd	Sacramento	Elk Grove	95757	12/2011	1.000	61417A	W2525
	SPVE Boessow 1	10930 Boessow Rd	Sacramento	Galt	95632	12/2011	2.000	61416A	W2477
	SPVE Boessow 2	10930 Boessow Rd	Sacramento	Galt	95632	12/2011	1.000	61416A	W2481
	SPVE Bruceville 1	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2518
	SPVE Bruceville 2	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2520
	SPVE Bruceville 3	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2521
	SPVE Bruceville 4	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2522
	SPVE Bruceville 5	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2523
	SPVE Bruceville 6	10645 Bruceville Rd	Sacramento	Elk Grove	95757	12/2011	3.000	61415A	W2524
	SPVE Kost 1	9690 Kost Rd	Sacramento	Galt	95632	12/2009	3.000	61414A	W2450
	McClellan Park Solar 1	3140 Peacekeeper Way	Sacramento	McClellan	95652	7/2010	0.930	61136A	W1635
	RE McKenzie 1	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61281A	W2972
	RE McKenzie 2	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61282A	W2973
	RE McKenzie 3	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61283A	W2974
	RE McKenzie 4	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61284A	W2975
	RE McKenzie 5	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61285A	W2976
	RE McKenzie 6	12498 McKenzie Rd	Sacramento	Galt	95632	11/2012	5.000	61286A	W2977
	RE Dillard 1	7786 Dillard Rd	Sacramento	Wilton	95693	12/2011	3.000	61274A	W2526
	RE Dillard 2	7786 Dillard Rd	Sacramento	Wilton	95693	12/2012	3.000	61275A	W2527
	RE Dillard 3	7786 Dillard Rd	Sacramento	Wilton	95693	12/2012	3.000	61276A	W2528
	RE Dillard 4	7786 Dillard Rd	Sacramento	Wilton	95693	12/2011	0.400	61277A	W2529
	RE Kammerer 1	8224 Kammerer Rd.	Sacramento	Elk Grove	95757	12/2011	5.000	61278A	W2530
	RE Kammerer 2	8224 Kammerer Rd.	Sacramento	Elk Grove	95757	2/2012	5.000	61279A	W2650
	RE Kammerer 3	8224 Kammerer Rd.	Sacramento	Elk Grove	95757	2/2012	5.000	61280A	W2651
	Twin Cities 1	3705 Twin Cities Rd	Sacramento	Uninc.	95823	9/2012	3.000	61682A	W2963
	Twin Cities 2	3705 Twin Cities Rd	Sacramento	Uninc.	95823	9/2012	1.000	61683A	W2965
	Wildflower Solar		Sacramento	Rio Lindo	95673	11/2020	13.000	tbd	tbd
	Rancho Seco II		Sacramento	Sloughouse	95683	11/2021	160.000	tbd	tbd

## Feed in Tariff Projects

The first 29 resources listed in the table are existing, local solar projects located in SMUD’s service territory in southern Sacramento County, as shown in the map below, all of which came on-line in the last 10 years (note that the Map does not show the two smallest projects, and erroneously lists the “Kost” facility as 6 MW rather than 3 MW). These resources constitute about 100 MW of solar projects developed in 2009-2013 pursuant to SMUD’s Feed in Tariff solicitation in 2009. Many of the projects are closely located geographically, forming 15 to 30 MW “system clusters” for easier interconnection. Individually, all the projects are less than 20 MW in size.

These projects generate 200-215 GWh annually. Output from the projects is currently allocated to SMUD’s RPS and existing SolarShares programs but will be reallocated to the Neighborhood SolarShares program as needed (only if necessary) as participating homes are built and become occupied, depending on availability of other resources in the initial supply portfolio.

Figure B1: Feed in Tariff Project Locations

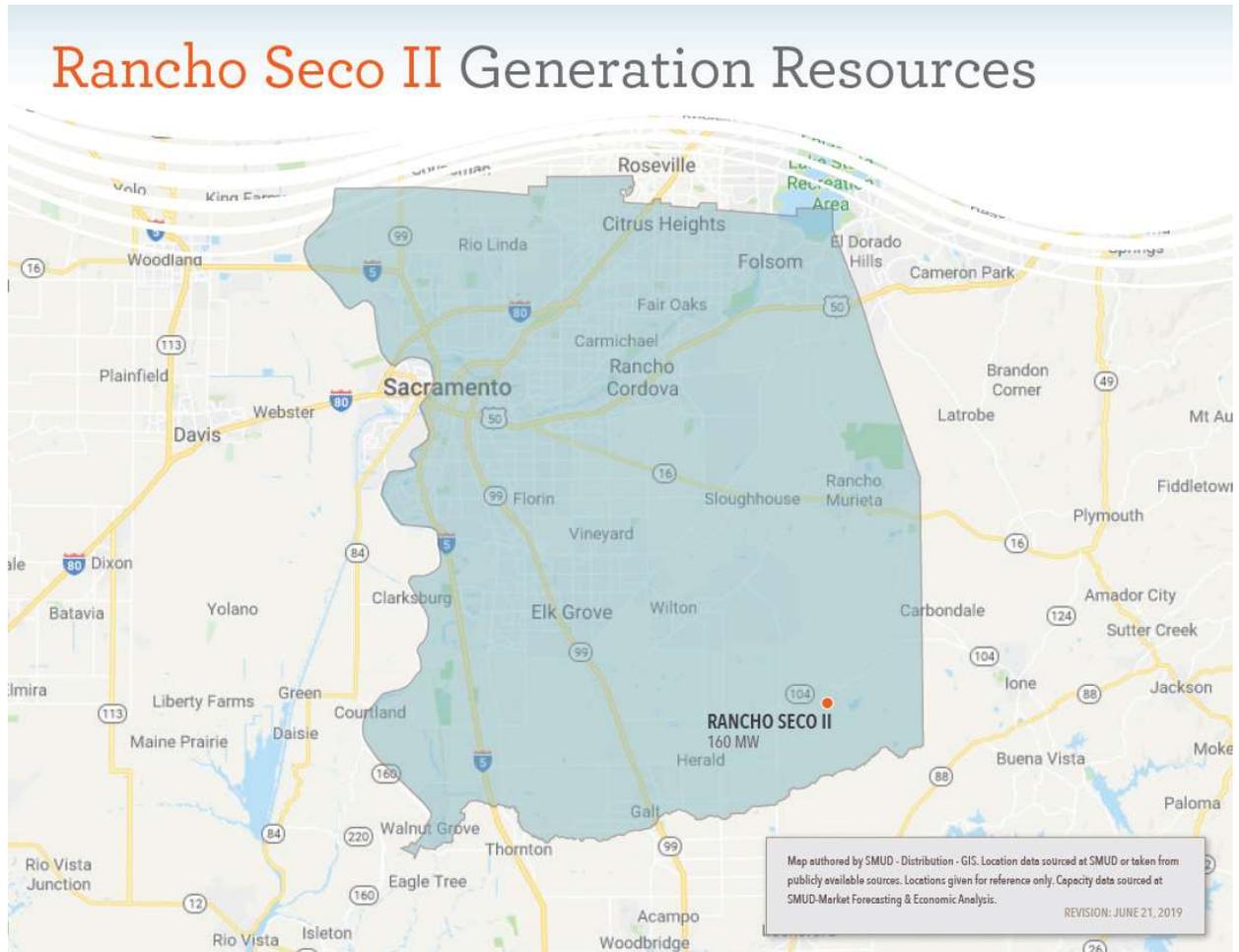


### Wildflower Solar

Wildflower Solar is a 13 MW project under development in the Rio Linda area in northern Sacramento County. The project is expected to be on-line in late-2020 and expected to generate approximately 25 GWh per year. Output from the project will be allocated as necessary and appropriate among Neighborhood SolarShares program participating homes and SMUD's RPS and otherwise will be allocated to other SolarShares programs. Most, if not all, of the RECs SMUD retires in WREGIS on behalf of Neighborhood SolarShares participants will be associated with Wildflower generation. Wildflower generation is enough to supply approximately 5,000 homes. Participating homes built prior to Wildflower's on-line date may need some initial RECs from the FIT resources in the portfolio.



Figure B3: Rancho Seco II Location



### Demonstration of Adequate Supply

The initial solar resources available to the program provide an estimated 625 GWh of annual generation that is available to allocate to Neighborhood SolarShares program participating homes as needed to meet demand in the program. Any generation not used for participating homes will be allocated to SMUD's RPS and other SolarShares programs.

SMUD estimates that the once on-line generation from the Wildflower resource is enough to supply approximately 5,000 homes, or several years of program needs.

The existing FIT resources and Rancho Seco II resource, once on-line, are available for generation allocation, but expected to be used only if necessary. This demonstrates that the initial resources available to the program contain enough sources of potential supply from existing and under-development resources to meet initial demand in the program. SMUD expects to develop additional solar resources to provide continued supply for the program over time.

An annual report that summarizes the balance between the SolarShares generation allocated to participating homes (referred to as sales data for the program) and the available supply from available resources (referred to as supply) will be prepared and audited by SMUD staff. This report will include cumulative sales data for the program in the reporting year, and REC retirement summaries from WREGIS sub-accounts that list generators and generation to the REC certificate level. This annual report will be available for participating home owners, participating customers, builders, Enforcement Agencies and the Commission to review.

Report tables will show total sales for the Neighborhood SolarShares program in aggregate form. As stated earlier, each participating home will receive SolarShares generation as specified in the participating home resource portfolio allocation table, for the 20-year participation term, but any new participating homes added to the program after the resources available to the program have changed may receive SolarShares generation as specified in a revised participating home resource portfolio allocation table. Report tables will also show the total generation that has been allocated from each resource in the program resource portfolio to serve the total SolarShares generation for all participating homes in the year. The generation identified from each resource will match total SolarShares generation received by participating homes (sales) annually, and RECs will be retired as required in WREGIS in SMUD's Neighborhood SolarShares program retirement subaccount.

# APPENDIX C: Western Renewable Energy Generation Information System and Center for Resource Solutions Green-e Descriptions

This appendix summarizes how WREGIS and the Center for Resource Solutions act to ensure additionality and integrity in renewable energy programs, including mandatory renewable portfolio standards, voluntary green pricing programs and shared solar programs. This information is based on and excerpted from “WREGIS Operating Rules”, the CRS Green-e website, and the Green-e Energy Code of Conduct.

## WREGIS

The Western Renewable Energy Generation Information System (WREGIS) is an independent, renewable energy generation tracking system for the Western Interconnection. WREGIS has been tracking the generation from and the renewable and environmental attributes associated with renewable energy since June 25, 2007. WREGIS also facilitates REC transfers, enables permanent retirement of RECs, assists regulators with the implementation of their renewable energy programs, and brings transparency to REC markets.

Any entity wishing to use WREGIS to track renewable energy generation must request to register with WREGIS, be approved as a WREGIS Account Holder by the WREGIS Administrator and pay applicable fees in order to establish accounts in the system. Each WREGIS account requires a WREGIS Account Manager on behalf of the WREGIS Account Holder. This person is authorized to manage the account, create logins, manage data uploads and update contact information as needed.

WREGIS collects data including monthly metering information documenting the generation in each hour of the month from each registered generating unit, as reported by certified Qualified Reporting Entities (QREs). WREGIS also collects static information regarding the Generating Unit, which has been provided by Account Holders and verified by the WREGIS Administrator.

One WREGIS Certificate (aka Renewable Energy Certificate, REC) is created for each MWh of renewable energy that has been produced and documented for each renewable electric generator, and each WREGIS Certificate is assigned a unique serial number. WREGIS Certificates can be used by electricity suppliers and other energy market participants to comply with relevant state/provincial policies, regulatory

programs, to support voluntary “green” electricity markets, or as determined by state or provincial policy.

WREGIS tracks RECs in a series of “accounts” that are similar to bank accounts – each having a unique account identification number. RECs that are created are deposited and managed within these accounts. These RECs can be transferred, retired or exported to a Compatible Tracking System at the discretion of the WREGIS Account Holder.

There are three WREGIS account or “subaccount” types:

1. **Active:** Holds all active Certificates prior to usage or transfer. The Active Sub-Account is the first point of deposit for any WREGIS Certificates created. An active subaccount may be associated with one or more Generating Units. Generally, a WREGIS Account Holder has all their registered generating units included in a single active account, but multiple active accounts are allowed. RECs can be traded or sold from the Active account(s) (the transactions happen outside of WREGIS, and the REC transfers are tracked in WREGIS). RECs may also be moved to a retirement Subaccount.
2. **Retirement:** Holds Certificates used for compliance or other purposes. The Retirement Sub-Account is a repository for WREGIS Certificates that the Account Holder has removed from circulation (e.g., to demonstrate compliance with a state's RPS or to back-up renewable claims. Generally, Account Holders have a variety of retirement subaccounts, each specific to a particular purpose or metric. For example, there are multiple RPS retirement subaccounts to separate the Product Content Category 1, 2 and 3 resources established by the California RPS. Retirement subaccounts can also be established to separate retirement of RECs representing generation in different years or types of resources. RECs in a retirement subaccount are no longer transferable to another party and serve as an electronic record that the REC has been “used” for the purpose associated with the retirement subaccount. Once in a retirement subaccount, RECs cannot be transferred back into an active or reserve Subaccount or into any other retirement subaccount.
3. **Reserve:** Holds Certificates sold 'off-system' without making a claim about the current Certificate status. The Reserve Sub-Account is a repository for WREGIS Certificates that the Account Holder withdraws from circulation within WREGIS due to a transfer to a third party who is not a WREGIS Account Holder. Once a Certificate has been transferred into a Reserve Sub-Account, it cannot be transferred again.

Once an Account has been established, an Account Holder may register one or more Generating Unit(s) and associate it with its WREGIS Account. To ensure that double-counting does not occur by registering Generating Units or Facilities participating in

WREGIS, Account Holders are attesting that 100 percent of their generation output from the registered meter has been reported to and tracked by WREGIS. WREGIS only accepts or approves generating units that are operating commercially. Generating units must meet the WREGIS geographical requirements (be within the Western Interconnect) and be renewable to be registered in an account and begin creating RECs, or WREGIS Certificates.

Once approved, generation data is electronically uploaded by the Qualifying Reporting Entity (QRE) for the generating unit. QREs may include Balancing Authorities, the interconnecting utility, scheduling coordinator, independent third-party meter reader, or other appropriate party, so long as the QRE has a signed agreement with the WREGIS Administrator and is meeting and following the established QRE guidelines. Importantly,

QREs and Account Holders are required to maintain complete separation of the generation reporting and the Account Holder responsibilities. WREGIS users will not be permitted to have a login for both types of accounts except when vetted by the WREGIS Administrator.

WREGIS Certificates (RECs) are created based on the metered generation data reported by QREs and deposited into the appropriate Active Subaccount listed on the Generating Units registration information. Account Holders can then transfer WREGIS Certificates to their other Subaccounts or to another Account Holder's Active Subaccounts or export them to another tracking system. The data must reflect the month and year (begin date and end date of the period covered by the meter reading) of the generation and include the vintage and monthly accumulated MWhs for each generating unit.

Each Certificate or REC has a unique serial number assigned by WREGIS. Certificate serial numbers contain codes embedded in the number that indicate the Generating Unit ID and the location of the generator. Certificate numbers cannot be changed. RECs may be retired by the WREGIS Account Holder into a specific retirement subaccount, thereby committing those RECs to be "used" for the associated purpose.

When an Account Holder wishes to retire RECs, it chooses the desired RECs from its Active Subaccount(s) and indicates that the RECs are to be retired in a specific retirement subaccount.

## CRS Green-e

Through the Green-e® Energy program, CRS certifies renewable energy that meets the highest standards in North America. Green-e Energy was established in 1997 in order to provide consumer protection through clear guidelines, disclosures and standards. Green-e Energy is the most rigorous and respected consumer protection

program for renewable energy in North America, with a transparent, published standard and hundreds of stakeholders participating in setting and regularly revising that standard. The renewable energy that Green-e Energy certifies goes through a thorough verification process to ensure that it is from relatively new projects (no more than 15 years old generally), is marketed with complete transparency and accuracy and delivered to the purchaser, who has sole title. Green-e® staff verifies the entire chain of custody of certified renewable energy from generation to retirement to ensure individuals and businesses are getting exactly what they paid for.

Through the Green-e Energy program, CRS certifies many renewable energy options, including:

- Community Choice Aggregation (CCA, also called Municipal Aggregation) programs
- Community Solar programs
- Competitive Electricity products
- Renewable Energy Certificate (REC) products
- REC purchases and power purchase agreements (PPAs) with generators and on-site generation, through [Green-e Direct](#).
- Utility Green Pricing programs

Sellers of Green-e Energy Certified renewable energy are reviewed twice a year to ensure that they live up to their advertising and marketing claims, and that their customers are getting what they paid for. Certified energy is accounted for and tracked through the annual Green-e Energy verification audit process. The audit process also verifies that the RECs have not been double-counted. Certified renewable energy sold to a consumer for a voluntary program cannot also be counted toward a state's renewable energy goal (a renewable portfolio standard, for example). Renewable energy must only be allocated to the voluntary programs being certified and the program participants.

Each participant wishing to claim Green-e Energy certification for any of their certified products agrees to perform these actions:

1. Conduct an annual independent verification of certified product sales and purchases, according to the Green-e Energy annual verification process.
2. Submit requested Marketing Compliance Review materials to ensure that website and marketing materials are compliant.
3. Provide customers and prospective customers with all adequate, accurate, clear and required information about the certified product.

4. Actively guard against double counting of certified products by following the requirements in the Green-e Energy National Standard, including:
  - a. Selling renewable electricity or RECs only once, and
  - b. taking reasonable actions to ensure that all supply is free of use claims from others, and that the renewable energy or RECs have not been sold to any other party. This could include, for example: using clear contract language, educating those in the chain of custody about the exclusivity of renewable claims and the value of the REC, and reviewing online marketing materials of entities in the supply chain of the purchased renewable electricity / RECs when possible.
5. Ensure by reporting agreements, attestations, and other contractual agreements with generators and wholesale counterparties, that generation output sold in the certified product has not been counted as part of, or used for compliance with, any mandated government renewable energy procurement (unless the certified product itself is used for compliance); renewable portfolio standard or other renewable energy requirement of local, state, provincial or federal government; or of the utility or generator except as provided for in the Green-e Energy National Standard Section III(D).

The verification process is designed by Center for Resource Solutions and conducted by an independent auditor selected by the Green-e participant. The verification process uses company contracts and records, renewable energy tracking system records, Green-e Energy attestations, invoices and billing statements to verify the following:

1. That the participant purchased enough renewable electricity or RECs in quantity and type to meet its customer demand for each certified product.
2. That the electricity or RECs were generated by eligible renewable generators, as defined in the Green-e Energy National Standard.
3. That the information provided to customers on the product's annual Historical Product Content Label is accurate compared to verified supply and consistent with that provided in the Prospective Product Content Label for the corresponding year.
4. That the renewable electricity or RECs purchased and sold by the provider were not sold to more than one customer.
5. That other requirements and criteria within the Green-e Energy National Standard are met, including, but not limited to, requirements pertaining to emissions limits, nuclear energy and the prohibition on double claims.

To be certified by Green-e, eligible RECs or renewable energy can be used once and only once in a manner that results in retirement. Renewable energy or RECs (or the

renewable or environmental attributes incorporated in that REC) that can be legitimately claimed by another party may not be used in Green-e Energy certified REC products.

Examples of prohibited double uses include, but are not limited to:

1. When the same REC is sold by one party to more than one party, or any case where another party has a conflicting contract for the RECs or the renewable electricity.
2. When the same REC is claimed by more than one party, including any expressed or implied environmental claims made pursuant to electricity coming from a renewable energy resource, environmental labeling or disclosure requirements. This includes representing the energy from which RECs are derived as renewable in calculating another entity's product or portfolio resource mix for the purposes of marketing or disclosure.
3. When the same REC is used by an electricity provider or utility to meet an environmental mandate, such as an RPS, and is also used to satisfy customer sales under Green-e Energy.

The use of one or more attributes of the renewable energy or REC by another party. This includes when a REC is simultaneously sold to represent "renewable electricity" to one party, and one or more Attributes associated with the same MWh of generation (such as CO2 reduction) are also sold, to another party.

# APPENDIX D: Sample Builder Agreement and Participating Home CC&Rs

**DRAFT – FOR INFORMATIONAL PURPOSES ONLY**

## **BUILDER NEIGHBORHOOD SOLARSHARES® PROGRAM – SAMPLE AGREEMENT**

This Builder Neighborhood SolarShares® program Agreement (“Agreement”), entered into and made effective on date of last signature below (“Agreement Date”), by and between BUILDER/DEVELOPER (“BUILDER”), and the Sacramento Municipal Utility District (“SMUD”) – each a “Party” and, collectively, the “Parties” – states the nature and extent of the agreement between the Parties.

### **RECITALS**

This CSSA is entered into with reference to the following facts:

- A. WHEREAS, SMUD is an electric utility serving homes in Sacramento County and small adjoining portions of Placer and Yolo Counties that owns and operates an electric power system; and
- B. WHEREAS, BUILDER is a builder that sells new homes to buyers/occupants (participating customers) that will be served electricity by SMUD; and
- C. WHEREAS, the California Energy Commission (CEC) Title 24 building energy standards (Title 24 Building Energy Standards) require newly constructed homes either to be equipped with onsite, photovoltaic solar systems or alternatively, to be served by a CEC-approved community shared solar electric generation program; and
- D. WHEREAS, SMUD and BUILDER wish to establish a partnership to facilitate the provision of solar generation to participating homes, in compliance with the CEC Title 24 Building Energy Standards; and
- E. WHEREAS, SMUD, as an approved Administrator under the Title 24 Building Standards, conducts an innovative Neighborhood SolarShares program that provides shares of solar generation that are allocated to meet the electricity needs of each participating home; and

- F. WHEREAS, BUILDER wishes to use the SMUD's Neighborhood SolarShares program to achieve compliance with the CEC Title 24 Building Energy Standards by requiring the participating homes to enroll in SMUD's Neighborhood SolarShares program.

NOW, THEREFORE, in consideration of the above-mentioned recitals and the obligations herein, the Parties mutually agree as follows:

### **AGREEMENT**

1. Purpose. The purpose of this Agreement and the intent of the Parties is for SMUD to allocate shares of solar generation to participating homes in communities built by BUILDER, and BUILDER to require all SMUD customers who occupy participating homes to purchase the allocated shares of solar generation under SMUD's Neighborhood SolarShares program. SMUD will allocate the shares of solar generation to SMUD's participating customers within Participant Account(s). The allocated shares of solar generation will be established for each participating home based on Title 24 requirements. This Agreement is required as a condition of BUILDER'S participation under SMUD's Neighborhood SolarShares program.
2. SolarShares® Allocation. Under its Neighborhood SolarShares program, SMUD will allocate shares of solar energy generation to the participating homes, hereinafter referred to as the "SolarShares Allocation." The SolarShares generation credits associated with the SolarShares Allocation are distributed to the participating customer's electric bills or account based on applicable time-of-day periods. SMUD will provide the BUILDER with the SolarShares Allocation tables for each participating home.

The SolarShares Allocation tables are applicable for a term of 5 years from the Agreement Date. After this 5-year vintage period, any homes that have not commenced electrical service with SMUD will be subject to new vintage SolarShares Allocation table(s) and Origination Fee(s).

3. Renewable Energy Credits. The SolarShares Allocation includes the renewable and environmental attributes associated with the solar generation allocated to each participating home including, but not limited to, the Renewable Energy Credits (RECs). All claims to renewable and environmental attributes may be made with respect to the participating home, including that the participating customer occupying that participating home uses solar power. The RECs associated with SolarShares Allocation(s) will be retired by SMUD on behalf of the participating home. In the event the laws or regulations for renewable/

environmental attributes or Title 24 standards change in a manner that impacts this Agreement, the Parties will meet and confer to update this Agreement to be consistent with the law/regulation. If either Party is unable to fulfill its obligations under this Agreement due to a change in law/regulation, the affected Party shall not be in breach of this Agreement.

4. Buydown. The BUILDER has the option of reducing the cost of the SolarShares electricity charge (or commensurately increasing SolarShares Credits, at SMUD's option) on the SMUD bill of participating customers through a one-time buydown, hereinafter referred to as an Origination Fee. The amount of the Origination Fee, if any, is a charge based on the home's SolarShares Allocation, and is described in Exhibit A. When opting for a buydown, BUILDER commits to not passing on the cost of the Origination Fee to the buyer of the home. In the event BUILDER breaches this Section 4 of the Agreement by passing any portion of the cost of the Origination Fee to the buyer of the home, BUILDER shall reimburse home buyer the said value of the Origination Fee that was passed onto the buyer.
5. Builder Commitment.
  - A. BUILDER shall disclose to all prospective buyers that the participating home is participating in SMUD's Neighborhood SolarShares program, and that each owner or tenant that occupies the participating home for the 20-year period, beginning with the first occupancy of the participating home, must take electricity service under SMUD's Neighborhood SolarShares program. Each participating customer is automatically enrolled in SMUD's Neighborhood SolarShares program. The participating customer will be obligated to receive energy bill credits resulting from the Allocation of SolarShares generation for that participating home and pay the charges to participate in the SolarShares program. The BUILDER shall cooperate with SMUD in the distribution of SolarShares marketing materials to be used for communication to prospective buyers.
  - B. BUILDER shall ensure owners/tenants who occupy BUILDER'S participating homes are enrolled in SMUD's Neighborhood SolarShares program by imposing this requirement as an equitable servitude through a properly recorded declaration of covenants, codes, and restrictions ("CC&Rs") referenced in each deed transferring title for each participating home. The BUILDER shall provide constructive notice of the CC&Rs to prospective buyers of the participating home before the BUILDER sells any participating home

to a prospective buyer(s). This equitable servitude shall run with the land and obligate the original owner(s)/tenant(s) and all subsequent owner(s)/tenant(s) who occupy the participating home, to enroll and take electrical service under SMUD's Neighborhood SolarShares program. BUILDER shall ensure that the CC&Rs provide SMUD with the right to enforce the applicable CC&Rs. This equitable servitude shall remain in force for a period of twenty (20) years from the date that the first SMUD electrical service occurs for the participating home.

BUILDER shall submit draft CC&Rs to SMUD and shall obtain SMUD's approval of the CC&Rs before they are recorded. Sample CC&Rs are attached herein as Exhibit B. The sample CC&Rs are intended as guidance to demonstrate the material substance of acceptable CC&Rs but may reflect a BUILDER's specific CC&R practice as long as the material substance for Title 24 compliance is conveyed, running with the land and binding the property to participation in Neighborhood SolarShares for 20 years from the start of electrical service. Builder shall provide SMUD a copy of recorded CC&Rs.

6. Non-Compliance with CEC Requirements. BUILDER shall comply with Title 24 Building Energy Standards in effect at the time of permit application for the participating home, and indemnify and hold SMUD, its directors, employees, and officers harmless against all loss, damage, expense, or liability resulting from BUILDER's non-compliance with such standards.
7. "Behind-the-Meter" Generation. If at any time during the Term of this Agreement "behind-the-meter" generation is installed for a participating home, the following provisions apply:
  - A. SolarShares generation shall be credited to energy bills by SMUD as primary and "behind-the-meter" generation shall be credited to energy bills by SMUD as secondary.
    - i. **Primary** = SolarShares kWh generation shall be credited first, before "behind-the-meter" generation.  
**Secondary** = "behind-the-meter" kWh generation shall be credited second, after SolarShares kWh generation.
  - B. In no event will SMUD adjust the SolarShares Allocation for the participating home when "behind-the-meter" generation is installed that applies to the account(s). The SolarShares Allocation shall remain in full for the Term of this Agreement for participating homes regardless of "behind-the-meter" kWh generation or onsite electrical load changes.

8. Term and Termination. This Agreement shall commence on the date that BUILDER records the CC&Rs described in paragraph 5 above and expires 20 years from the date that the last participating home begins SMUD electrical service. BUILDER must inform SMUD when applying for final permit for the last participating home.
9. Limitation of Liability. In no event shall one Party be liable to the other Party for any indirect, special, consequential or incidental damages, regardless of whether the Party has been informed of the possibility of such damages or is negligent, and whether or not such damages were reasonably foreseeable.
10. Relationship of the Parties. This Agreement does not constitute, create nor give effect to a partnership, joint venture, or any agency between the Parties.
11. Applicable Law. Each Party shall comply with all applicable federal, state and local laws, regulations or ordinances in effect or hereafter adopted. This CSSA shall be governed by and construed and interpreted in accordance with the substantive laws of the State of California, and federal rules and regulations as applicable.
12. Assignment. Builder shall transfer this Agreement to subsequent builders with advance notice provided to SMUD. Subsequent builders shall be obligated to comply with all provisions of this Agreement. Other than that specified transfer, this Agreement, or any interest herein, shall not be transferred or assigned – in whole or in part - by either Party, without the prior written consent of the other.
13. Notice. Any notice or other writing required or permitted by this Agreement, including but not limited to changes/updates to Exhibit(s), shall be deemed to have been sufficiently given either when personally delivered, emailed or mailed by certified or registered United States mail with postage prepaid to the individual representatives and addresses of the Parties specified herein. The individuals designated below shall, unless and until otherwise specified in writing by another authorized representative of the Party, be the only individuals eligible to receive any and all written notices under this Agreement:

For SMUD:

Dept Name: XXXXX

Dept Email: XXXX

For Builder:

Dept Name: XXXXX

Dept Email: XXXX

Attn: John Doe  
Address: 6301 S Street, M.S. XXXX  
Sacramento, CA 95817  
Telephone: (916) 732-XXX

Attn: John Doe  
Address: XXXX  
Sacramento, CA XXXXX  
Telephone: (916) XXX-XXXX

14. Changes. No modification or amendment to this Agreement shall be binding upon the Parties unless made in writing and signed by a duly authorized official of both Parties. Changes that cause participating homes to fail to comply with the Title 24 Building Energy Standards in effect at time of permit application are prohibited.
15. Severability. In the event any portion of this Agreement is deemed invalid or unenforceable for any reason by a court of competent jurisdiction, the remaining portions of this Agreement shall remain in full force and effect.
16. Ambiguities. This Agreement is a product of negotiation and the Parties have agreed to each term of it, and as such, ambiguities, if any, in the terms of this Agreement shall not be construed against any Party.
17. Counterparts/Electronic Delivery. This Agreement may be signed in counterparts, each of which shall be deemed an original, but all or which together shall constitute one and the same instrument. This Agreement may be executed and delivered by facsimile or electronic transmission, and the Parties agree that such facsimile or electronic (e.g., .pdf) execution and delivery shall have the same force and effect as delivery of an original document with original signatures, and that each Party may use such facsimile or electronic signatures as evidence of the execution and delivery of this Agreement by the Parties to the same extent that an original signature could be used.
18. Entire Agreement. This Agreement constitutes the entire understanding between the Parties with regards to Neighborhood SolarShares. Each Party covenants that there is no agreement between itself and any other person, firm, or corporation which would impair the full force and effect of this Agreement.

**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be executed on the dates indicated below.

**SACRAMENTO MUNICIPAL UTILITY DISTRICT**

By: \_\_\_\_\_

Name:

Title:

Date: \_\_\_\_\_

**BUILDER**

By: \_\_\_\_\_

Name:

Title:

Date: \_\_\_\_\_

# Exhibit A

## A.1 Neighborhood SolarShares BUILDER Origination Fee

The BUILDER Origination Fee, if any, is based on the buydown amounts established for this Agreement, determined by SMUD and the BUILDER for each participating home based on Title 24 Building Energy Standards requirements and the Neighborhood SolarShares allocation table for that participating home. The Origination Fee for the participating homes shall be \$\_\_\_/watt of SolarShares® Allocation for each participating home under the SolarShares allocation table currently in effect.

## A.2 Mutual Agreement

The Parties, upon mutual agreement, may revise this Exhibit A as appropriate to modify the Origination Fee, and issue a new Exhibit A, which shall then become part of this Agreement. No formal amendment of the Agreement is required to update this Exhibit A.

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**Signature of Builder**

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**Signature of SMUD**

# Exhibit B

## Sample CC&R Provisions

### **Article 5. Utilities – SolarShares**

Section 1, Obligation to Enroll. Each Owner and/or Tenant occupying a SolarShares participating home shall obtain electrical service by enrolling and participating in SMUD’s Neighborhood SolarShares® program. SMUD’s Neighborhood SolarShares program shall be the exclusive provider of off-site electrical service for participating homes. Nothing in this Declaration shall be construed to effectively prohibit or unreasonably restrict the installation or use of a “behind-the-meter” solar energy system to serve the electricity demand of participating homes.

Section 2, Term of Obligation. The condition, covenant and restriction to enroll in SMUD’s Neighborhood SolarShares program specified in Section 1 shall be required for each participating home from the date electrical service is first established for that home. The condition, covenant and restriction specified in Section 1 shall be required for a period of twenty (20) years from the date electrical service is first established for each participating home and then automatically terminate.

### **Article 15. General Provisions**

Section 1, Enforcement. Any Owner (or the community Association if applicable), shall have the rights to enforce, by any proceeding at law or in equity, all restrictions, conditions, covenants, reservations, liens and charges now and hereafter imposed by the provisions of this Declaration. The community Association (if applicable) shall have a non-discretionary duty to enforce the restrictions and covenants contained in Article 5 of this Declaration. SMUD shall have the right to enforce, by any proceeding at law or in equity, the restrictions, conditions and covenants contained in Article 5. Any failure to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter. The prevailing party in any legal action is entitled to recover legal fees as provided in current California law and elsewhere in the Declaration.

Section 2, Term of Declaration and Amendment. The conditions, covenants and restrictions of this Declaration shall run with and bind the land. This Declaration may be amended by approval of at least fifty-one percent (51%) of the Lot Owners; provided that the restrictions and covenants contained in Article 5 are irrevocable and may not be amended in any way. Any amendment must be properly recorded to be effective.