

**Multifamily Affordable Solar Housing**  
**Semi-annual Progress Report**  
**January 31, 2014**



Center for  
Sustainable Energy  
CALIFORNIA



# Table of Contents

1. Executive Summary .....	2
2. Background.....	3
2.1. Incentive Types: Track 1 (A and B) and Track 2 .....	4
Table 1: MASH Track 1 Incentive Rates in \$/Watt .....	5
2.2. Virtual Net Metering .....	6
Figure 1: Conventional Solar Systems on Individually Metered Multifamily Housing.....	6
Figure 2: Virtual Net Metering System on Individually Metered Multifamily Housing.....	8
2.3. Program Eligibility.....	8
2.4. Budget .....	8
Table 2: MASH Budget Allocations by Utility Territory .....	9
Table 3: MASH Program Expenditures by Program Administrator .....	9
3. Program Progress .....	10
Table 4: Summary Data: MASH Track 1 Applications by Status .....	11
Chart 1: Track 1 Applications by Status.....	12
3.1. MASH Track 1 Activity .....	13
Table 5: Detailed Data: MASH Track 1A (Common Area) Applications by Status.....	13
Table 6: Detailed Data: MASH Track 1B (Tenant) Applications by Status .....	14
Chart 2: Projects by System Size .....	14
Chart 3: Average Cost per Watt by Project Size .....	15
3.2. MASH Track 2 Incentives .....	15
Table 7: Summary Data: Total MASH Track 2 Applications by Status .....	16
3.3. Virtual Net Metering Activity .....	16
Table 8: Tenant Units Served by Virtual Net Metering (VNM) Tariffs.....	16
4. Regulatory Update .....	17
Conclusions.....	17

# Multifamily Affordable Solar Housing Semiannual Progress Report

The California Center for Sustainable Energy (CCSE), on behalf of the California Solar Initiative (CSI) Program Administrators (PAs), submits this Semi-annual Progress Report for the Multifamily Affordable Solar Housing (MASH) Program, in compliance with California Public Utilities Commission (CPUC) Decision (D.) 08-10-036, which requires the PAs to submit joint semi-annual reports to the Director of the Energy Division on the progress of the MASH Program.<sup>1</sup>

This ninth edition of the MASH semiannual report captures administrative expenses and program data from program inception on October 16, 2008, through December 31, 2013. It includes requirements identified in Appendix A of D.08-10-036 and other data that the Energy Division (ED) has requested to be included in the report.

## 1. Executive Summary

The MASH Program is one of CSI's two low-income programs and is administered by Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE) and California Center for Sustainable Energy (CCSE) in San Diego Gas & Electric Company's service territory. The MASH Program provides incentives for the installation of solar photovoltaic (PV) systems on low-income multifamily housing, as defined in California Public Utilities Code (PUC) Section 2852. The MASH Program was directed to have two incentive tracks, both of which are paid in a one-time lump sum payment referred to as the Expected Performance-Based Buydown (EPBB).

1. Track 1 provides fixed, capacity-based rebates at \$1.90 per watt for solar PV generating systems that offset common area electrical load (Track 1A) or at \$2.80 per watt for offsetting tenant area electrical load (Track 1B).<sup>2</sup> Track 1 applications are reviewed on a first-come, first-served basis.
2. Track 2 is a competitive application process and provides variable rebates up to 100% of system and ongoing maintenance costs. To receive Track 2 funds, an applicant must demonstrate direct tenant benefit. Track 2 consists of two

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<sup>1</sup> D.08-10-036, Ordering Paragraph No. 9 and Appendix A. In addition, the PAs will file a more detailed reporting of MASH expenses, including VNM implementation, as part of the CSI semiannual administrative expense report.

<sup>2</sup> D.08-10-036 originally set the Track 1 incentives at \$3.30 per watt for Track 1A and \$4.00 per watt for Track 1B. On July 14, 2011, the incentives were reduced, per Ordering Paragraph 13 of D.11-07-031, to \$1.90 per watt for Track 1A and \$2.80 per watt for Track 1B. The new incentive levels apply to any MASH reservations placed under review on or after the date of the decision.

application cycles per year. As of July 2011, unallocated Track 2 funds were shifted to Track 1, and as a result, Track 2 is closed and no longer being offered.<sup>3</sup>

The PAs began accepting applications for Track 1 in February 2009 and conducted the first round of Track 2 application evaluations between July and December 2009. In addition, PG&E, SCE and SDG&E began to offer a virtual net metering (VNM) utility tariff option in June 2009 to help with the installation of solar PV generating systems in multifamily affordable housing complexes.

Since the inception of the program, the PAs have paid out more than \$68,536,557 in incentives on 293 completed Track 1 solar projects statewide. As of December 31, 2013, PG&E, SCE and CCSE are fully subscribed and accepting waitlist applications on a first-come, first-served basis. To find out about the latest information on funding availability, check the [MASH budget report](#)<sup>4</sup> and contact your local PA or visit their program website.

Track 2 was eliminated as a program offering in July 2011 because of D.11-07-031, which required unallocated Track 2 funds to be transferred to Track 1. The decision noted, "The strong demand for Track 1 incentives indicates that the higher Track 2 incentives are not necessary."<sup>5</sup>

## 2. Background

In D.06-01-024, the Commission adopted the staff proposal to set aside a minimum of 10% of CSI Program funds for projects installed by low-income residential customers and affordable housing projects.<sup>6</sup> In 2006, the California Legislature codified this requirement in Senate Bill (SB) 1 and Assembly Bill (AB) 2723.<sup>7,8</sup> Subsequently, in D.06-12-033, the Commission directed PAs to conform the CSI Program to SB 1 and AB 2723 requirements and directed that 10% of the total ten-year CSI budget would be reserved for the low-income residential solar incentive programs that are now referred to as the MASH and the Single-Family Affordable Solar Homes (SASH) Programs.

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<sup>3</sup> Conclusion of Law 26 of D.11-07-031 provides that all funds remaining in MASH Track 2 should be shifted to MASH Track 1.

<sup>4</sup> The California Solar Statistics website provides a MASH budget report that is updated weekly: [http://www.californiasolarstatistics.ca.gov/reports/mash\\_budget/](http://www.californiasolarstatistics.ca.gov/reports/mash_budget/)

<sup>5</sup> D.11-07-031, pp. 52 and 53.

<sup>6</sup> D.06-01-024, *mimeo.*, pp. 5 and 27, Conclusion of Law 9 at p. 43 (*see also* Appendix A, pp. 2-3).

<sup>7</sup> SB 1 (Murray & Levine), *Chapter 132, Statutes of 2006*, sets forth specific CSI program requirements regarding program budget, conditions for solar incentives and eligibility criteria.

<sup>8</sup> AB 2723 (Pavley), Chapter 864, Statutes 2006, required the Commission to ensure that not less than 10% of the CSI funds are used for the installation of solar energy systems on low-income residential housing and authorized the Commission to incorporate a revolving loan or loan guarantee program for this purpose.

On October 16, 2008, in D.08-10-036, the Commission established the \$108.34 million MASH Program as a component of the CSI Program. The MASH Program provides incentives “for solar installations on existing multifamily affordable housing that meet[s] the definition of low-income residential housing established in Public Utility Code § 2852.”<sup>9</sup>

The Commission adopted a two-track incentive structure “with Track 1 providing up-front incentives to systems that offset either common area or tenant load, and Track 2 providing an opportunity to compete for higher incentives through a grant program.”<sup>10</sup>

PG&E, SCE and CCSE in SDG&E’s service territory administer incentives under the MASH Program. The Commission selected the general market CSI PAs because the target customers of the MASH Program, who are affordable housing building owners, are similar to the commercial and nonprofit customers of the general market CSI Program. The resulting synergy allowed the PAs to incorporate MASH into their existing CSI administrative structures and to implement MASH in a quick and cost-effective manner.<sup>11</sup>

The overall goals for the MASH Program are to

1. Stimulate adoption of solar power in the affordable housing sector
2. Improve energy utilization and overall quality of affordable housing through application of solar and energy efficiency technologies
3. Decrease electricity use and costs without increasing monthly household expenses for affordable housing building occupants
4. Increase awareness and appreciation of the benefits of solar among affordable housing occupants and developers

The MASH Program will operate either until December 31, 2015, or until all funds available from the program’s incentive budget have been allocated, whichever event occurs first. PUC Section 2852(c)(3) requires that any program dollars unspent on January 1, 2016, are to be used for Low-Income Energy Efficiency programs.

## **2.1. Incentive Types: Track 1 (A and B) and Track 2**

The MASH Program is designed to subsidize solar PV generating systems in low-income multifamily housing. Incentivizing the installation of solar PV generating systems in the MASH Program is not as straightforward as the general market CSI Program. Although affordable housing building owners are the target market, two different categories of customers may receive the benefits from an installed system: building

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<sup>9</sup> D.08-10-036, Appendix A, *mimeo.*, p. 1.

<sup>10</sup> D.08-10-036, *mimeo.*, p. 9.

<sup>11</sup> D.08-10-036, p. 24-25.

owners and tenants. The incentive structure and rebate levels of the MASH Program were designed to allow benefits of the solar systems to accrue for both categories of customers.

To accomplish this goal, MASH incentives are divided into two different tracks: Track 1 and Track 2. Track 1 is similar to the general market CSI Program in that the rebate amount is fixed and capacity-based. As shown in Table 1, Track 1 offers different incentives for solar PV generating systems that offset the electric load for common areas and tenant units. The rebates are based only on the Expected Performance Based Buy-down (EPBB) method, which is a one-time lump sum payment made after verification of system installation. In the MASH Program, the EPBB incentive rates are fixed and do not automatically decline as they do in the general market CSI Program; instead the incentive levels can be revisited, and the administrative law judge assigned to the CSI proceeding has the authority to reduce MASH Track 1 incentives by up to 10% each year.<sup>12</sup>

**Table 1: MASH Track 1 Incentive Rates in \$/Watt<sup>2</sup>**

Track 1A: PV System Offsetting Common Area Load	Track 1B: PV System Offsetting Tenant Area Load
\$1.90/watt	\$2.80/watt

Track 1A incentives are available for solar PV system installations that offset common area load; Track 1B incentives are available for systems that offset residential tenant unit electrical load. There is no mandate requiring property owners to install systems that offset tenant unit load in order to qualify for Track 1 incentives; however, the assumption is that the higher Track 1B rate is sufficient to incentivize property owners to provide solar electric benefits to their tenants.

The Track 2 category allowed applicants to compete for higher incentive rates if the project provides a quantifiable “direct tenant benefit” (i.e., any operating costs savings from solar that are shared with tenants). Other categories of benefits considered when determining an award included energy efficiency improvements in tenant units, on-site green job creation, training, outreach and education for tenants on sustainability topics.

Two Track 2 award cycles were scheduled each year, and the PAs were able to award up to 20 percent of the total Track 2 budget in any given cycle; however, awards were not guaranteed during any cycle. For each winning application, a PA was able to award up to 100 percent of the capital costs for the project as well as ongoing operation and maintenance costs.

To ensure that the PAs applied consistent criteria in evaluating Track 2 applications, the PAs developed a standardized statewide Track 2 application and review process with consultation from members of the affordable housing community.

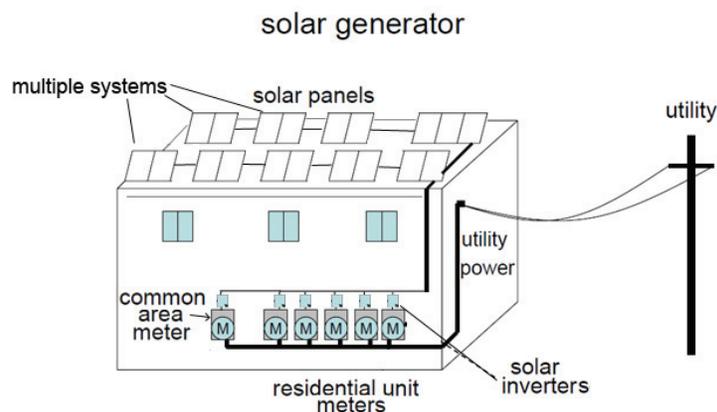
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<sup>12</sup> D.08-10-036, p. 14.

Track 2 was eliminated as a program offering in July 2011 because of D.11-07-031, which required unallocated Track 2 funds to be transferred to Track 1. The decision noted that “the strong demand for Track 1 incentives indicate[d] that the higher Track 2 incentives [were] not necessary.”<sup>13</sup>

## 2.2. Virtual Net Metering

Following adoption of D.93586 in December 1981, most utilities closed their master meter/submeter tariffs to new installations. PUC Section 780.5 required individual utility metering in multi-unit residential buildings that received building permits after July 1, 1982. While this setup encourages tenants to conserve energy and have more control over their usage, it presented challenges to the low-income multifamily building owners who want to install solar PV generating systems intended to serve tenants. In order to offset energy usage in tenant units, an owner would have to install a separate system with its own inverter for every meter on the property (see Figure 1).



**Figure 1: Conventional Solar Systems on Individually Metered Multifamily Housing**

To encourage solar installations on low-income multi-unit affordable housing properties through the MASH Program, D.08-10-036 directed SCE, PG&E and SDG&E to file tariffs for an arrangement called virtual net metering (VNM). These tariffs allow multifamily affordable building owners that participate in the MASH program to install a single solar PV generating system that covers the electrical load of the owner’s common areas as

<sup>13</sup>D.11-07-031, pp. 52 and 53.

well as the tenants' individual meters that are located within the residential complex.<sup>14</sup> A residential complex is defined as all of the real property and apparatus employed in a single low-income housing enterprise on contiguous parcels of land, which may be divided by a dedicated street highway or public thoroughfare or railway, so long as they are otherwise contiguous and part of the same single low-income housing enterprise, they are all under the same ownership.

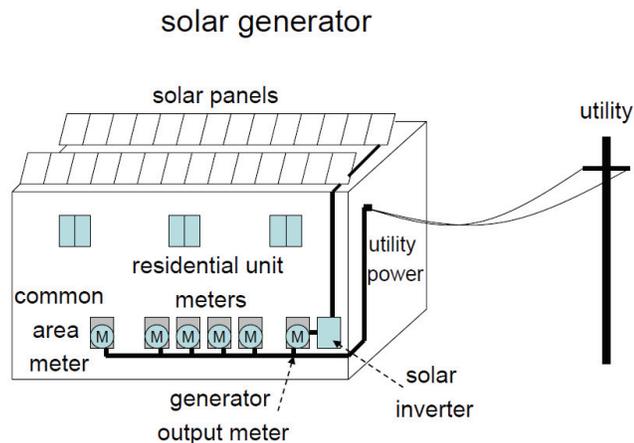
The virtual net metering process is described as a PV system installation on an individually metered building (see Figure 2) where the electricity generated by the system is fed back into the grid through a generator output meter, which measures the kilowatt-hours produced. Based on a prearranged allocation determined by the property owner, the participating utility allocates the kilowatt-hours resulting from the energy produced by the solar PV generating system to both the building owner's and tenants' individual utility accounts. The energy allocation to the tenant accounts is based on the relative size of the tenant's unit, consistent with the manner in which affordable housing rents are established. The allocated kilowatt-hours are then netted with the customer's usage and then billed in the same manner as a regular NEM customer's account. The VNM tariffs that PG&E, SCE and SDG&E offer are currently available to those customers that receive incentives through either the MASH Program or the California Energy Commission's New Solar Homes Partnership Program. Detailed VNM tariff requirements are located at each utility's website.

- PG&E: [Schedule NEMVMASH](#)
- SCE: [Schedule MASH VNM](#)
- SDG&E: [Schedule VNM-A](#)

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<sup>14</sup> D.11-07-031, Ordering Paragraph 1 at p.65, states that within 30 days of the effective date of the decision, SCE and SDG&E shall each file an advice letter to match PG&E's NEMVNMA tariff, and PG&E shall file an advice letter to remove the December 31, 2011, sunset date for the option to serve accounts located at multiple customer service delivery points from its NEMVNMA tariff. Via PG&E Advice Letters 3718-E and 3718-E-A, PG&E modified its Schedule NEMVNMA, Virtual Net Energy Metering (VNM) Service for Individually Metered Residential Units and Owners with Housing Receiving Incentives from the Multifamily Affordable Solar Housing (MASH) Program and the New Solar Homes Partnership Program (NSHP) affordable housing to allow customers meeting certain requirements the option to alternatively elect to serve accounts located at multiple customer service delivery points within their "Eligible Low-Income Development" so as to fully utilize their solar generator(s) of not more than 1,000 kW also sited within their "Eligible-Low Income Development." These options are available to customers who are ready to interconnect no later than December 31, 2011.

Each utility filed an advice letter as required by Ordering Paragraph 1 of D.11-07-031, within the required timeframe. The change to PG&E's and SCE's tariff became effective September 14, 2011. PG&E's advice letter also changed the tariff name from NEMVNMA to NEMVMASH. The revision to SDG&E's tariff became effective September 13, 2011.



**Figure 2: Virtual Net Metering System on Individually Metered Multifamily Housing**

As MASH VNM projects begin their initial system design, it is important for the customer and the solar contractor to understand the requirements of the VNM tariff for each utility prior to the installation. MASH PAs work with the contractors and/or the customers to ensure compliance with the tariff.

### 2.3. Program Eligibility

Eligibility for the MASH Program is based on the characteristics of the affordable housing development, which must

1. Meet the definition of “low-income residential housing” as provided in PUC Section 2852
2. Have an occupancy permit<sup>15</sup>
3. Be an electric customer of SCE, PG&E or SDG&E

### 2.4. Budget

In an assigned commissioner’s ruling dated February 5, 2007, in Rulemaking (R.) 06-03-004, one-half of the \$216 million low-income CSI budget adopted by the Commission in D.06-12-033 (\$108 million) was reserved for multifamily affordable housing; the other half was allocated to single-family affordable homes. The MASH Program budget, shown in Table 2<sup>16</sup>, was adopted formally by the CPUC in D.08-10-036.

<sup>15</sup> Conclusion of Law 30 of D.11-07-031 provides that the two-year occupancy requirement for MASH applicants is no longer needed, but projects may not receive incentives from both NSHP and MASH.

<sup>16</sup> Conclusion of Law 26 of D.11-07-031 provides that all funds remaining in MASH Track 2 will be shifted to MASH Track 1. The shift modified the MASH budget allocation amounts between Track 1 and Track 2. However, the combined incentive total for Track 1 and Track 2 remains the same.

Twelve percent of each PA's MASH budget is reserved for program administration, including marketing and outreach (M&O) and program evaluation. The PAs must spend two percent on evaluation; however, the remaining ten percent can be split between general administration and marketing and outreach at each PA's discretion.

**Table 2: MASH Budget Allocations by Utility Territory**

	<b>PG&amp;E</b>	<b>SCE</b>	<b>CCSE</b>	<b>Total</b>
<b>Budget %</b>	43.7%	46%	10.3%	100%
<b>Track 1A and 1B</b>	\$32,923,230	\$34,656,032	\$7,759,938	\$75,339,200
<b>Track 2</b>	\$8,740,000	\$9,200,000	\$2,060,000	\$20,000,000
<b>Administration (12%)</b>	\$5,681,350	\$5,980,368	\$1,339,082	\$13,000,800
<b>Total</b>	<b>\$47,344,580</b>	<b>\$49,836,400</b>	<b>\$11,159,020</b>	<b>\$108,340,000</b>

From October 16, 2008, through December 31, 2013, total MASH Program expenditures were \$71,953,308. Incentive payments make up a significant portion of the total expenses at 95%. Table 3 details expenditures by PA.

**Table 3: MASH Program Expenditures by Program Administrator**

<b>MASH Program Expenditure Data Oct 16, 2008<sup>17</sup> to December 31, 2013</b>				
<b>Expenditure Type</b>	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
<b>Administrative</b>	\$606,756	\$1,203,162	\$1,130,769	<b>\$2,940,220</b>
<b>Marketing</b>	\$75,424	\$50,977	\$46,075	<b>\$172,476</b>
<b>Measurement &amp; Evaluation</b>	\$8,117	\$284,415	\$11,523	<b>\$304,055</b>
<b>Incentive</b>	\$9,746,363	\$27,846,560	\$30,943,634	<b>\$68,536,557</b>
<b>Total</b>	<b>\$10,436,193</b>	<b>\$29,385,114</b>	<b>\$32,132,001</b>	<b>\$71,953,308</b>

<sup>17</sup> Effective date of Decision 08-10-036.

### 3. Program Progress

Since the publication of the last semi-annual report, 15 additional Track 1 applications have been completed program-wide for a total of 293 MASH solar projects with a capacity of 17.993 MW.

As shown in Table 4, the total number of completed projects is comprised of 138 in PG&E's territory, 116 in SCE's territory and 39 in SDG&E territory. At the time of this publication, \$60,415,747 in incentives has been paid to MASH Track 1 projects statewide.

Table 4 also shows that there are a total of 93 MASH Track 1 applications in the pipeline with incentives totaling \$25,251,417 and an estimated capacity of 10.148 MW.

To date, the MASH Track 1 program has received and processed more than 605 applications. Chart 1 illustrates the number of applications in each status as of December 31, 2013. One hundred percent of CCSE's active<sup>18</sup> projects are completed; approximately 67% of the projects in PG&E's territory and 82% in SCE's territory are finalized and paid.

Per D.11-07-031, MASH Track 2 has been closed, and all unallocated funds were transferred to Track 1. This change allowed the PAs to move Track 1 waitlist projects in their respective territories into active status. Customers and applicants were given the opportunity to revisit their application and determine its feasibility given the reduction in the incentive rates and application fee requirements.

To access the most current MASH program data that is available to the public, go to the California Solar Statistics site at <http://www.californiasolarstatistics.ca.gov/>.

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<sup>18</sup> Active status is defined as applications that are either under review, reserved or completed.

**Table 4: Summary Data: MASH Track 1 Applications by Status**

<b>Summary Data (Track 1)</b>				
<b>UNDER REVIEW APPLICATIONS</b>	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
Application (Number)	0	1	2	<b>3</b>
Capacity (MW)	0.000	0.042	0.220	<b>0.262</b>
Incentives	\$0	\$118,600	\$599,568	<b>\$718,168</b>
<b>RESERVED APPLICATIONS</b>				
Application (Number)	0	67	26	<b>93</b>
Capacity (MW)	0.000	5.359	4.789	<b>10.148</b>
Incentives	\$0	\$12,948,881	\$12,302,536	<b>\$25,251,417</b>
<b>COMPLETED APPLICATIONS</b>				
Application (Number)	39	138	116	<b>293</b>
Capacity (MW)	2.447	7.507	8.039	<b>17.993</b>
Incentives	\$8,854,604	\$25,305,594	\$26,255,549	<b>\$60,415,747</b>
<b>WAITLIST APPLICATIONS</b>				
Application (Number)	69	42	37	<b>148</b>
Capacity (MW)	12.193	13.317	6.987	<b>32.497</b>
Incentives	\$31,852,651	\$34,873,496	\$18,298,526	<b>\$85,024,673</b>
<b>OTHER DETAILS</b>				
Average Project Costs (\$/watt) Completed, before incentive	\$6.29	\$6.93	\$6.57	<b>\$6.60</b>
Average Dropout Rate	5.78%	21.92%	25.11%	<b>17.6%</b>

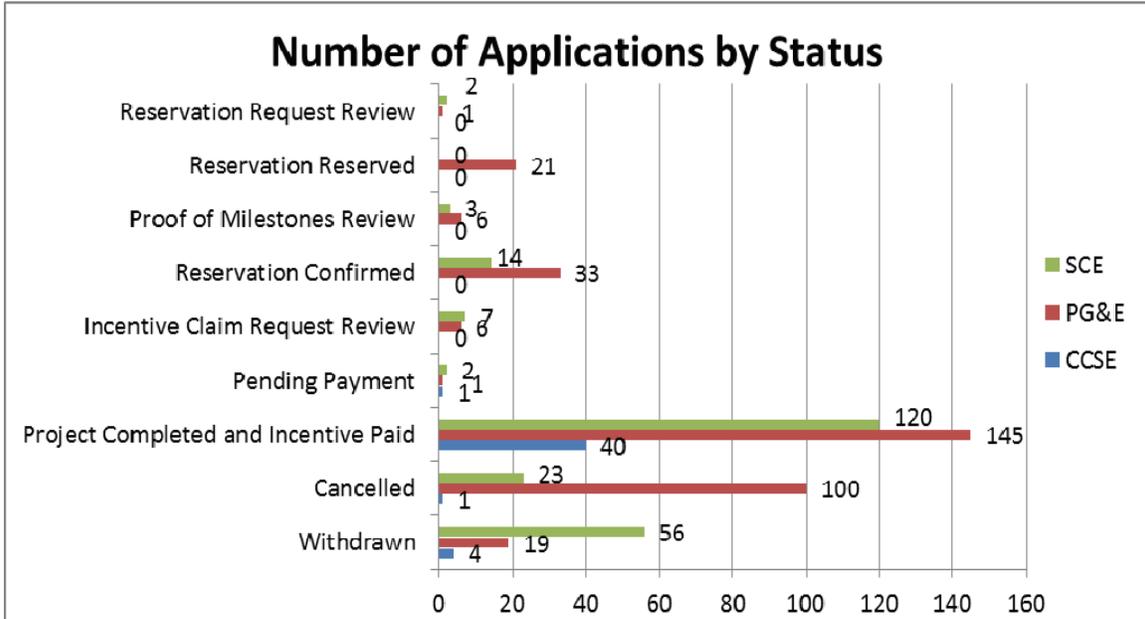
Data: Oct. 16, 2008 – Dec. 31, 2013

Source: PowerClerk and [www.californiasolarstatics.ca.gov](http://www.californiasolarstatics.ca.gov)

Note: All system capacity measured in CEC-AC MW

**Chart 1: Track 1 Applications by Status**

To access the latest MASH Program statistics including waitlist status, customers and stakeholders are encouraged to visit the Go Solar California website at <http://www.californiasolarstatistics.ca.gov/>.



Data as of Dec. 31, 2013  
 Source: [www.californiasolarstatistics.ca.gov](http://www.californiasolarstatistics.ca.gov)

### 3.1. MASH Track 1 Activity

The charts and tables in this section illustrate detailed MASH Track 1 activity based on several data points, such as application status, number of active applications, system capacity and incentive dollars.

To illustrate program subscription under Track 1A (common area) and Track 1B (tenant area) incentives, the information has been separated between the two incentive tracks.

With a total of 35% of incentive dollars allocated for Track 1A and 65% for Track 1B, PV system investments appear to lean toward those that offset tenant electrical usage.

Table 5 shows that there are currently 2.840 MW reserved and 0.014 MW of capacity under review for Track 1A incentives. Across all PA territories, there is a total of 6.499 MW on the waitlist. So far, 8.159 MW of solar projects have been completed under Track 1A.

**Table 5: Detailed Data: MASH Track 1A (Common Area) Applications by Status**

<b>UNDER REVIEW</b>	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
Capacity (MW)	0.000	0.000	0.014	<b>0.014</b>
Incentives	\$0	\$0	\$25,112	<b>\$25,112</b>
<b>RESERVED</b>				
Capacity (MW)	0.00	1.751	1.089	<b>2.840</b>
Incentives	\$0	\$3,286,949	\$2,066,847	<b>\$5,353,796</b>
<b>COMPLETED</b>				
Capacity (MW)	0.422	3.791	3.946	<b>8.159</b>
Incentives	\$1,254,250	\$11,353,816	\$11,722,762	<b>\$24,330,828</b>
<b>WAITLISTED</b>				
Capacity (MW)	2.543	2.682	1.274	<b>6.499</b>
Incentives	\$4,831,681	\$5,094,690	\$2,405,653	<b>\$12,332,024</b>

Data: Oct. 16, 2008 – Dec. 31, 2013

Source: PowerClerk and [www.californiasolarstatics.ca.gov](http://www.californiasolarstatics.ca.gov)

All system capacity measured in CEC-AC MW

In comparison, Table 6 below shows that there are 7.309 MW reserved and 0.248 MW of capacity under review for Track 1B incentives. Across all PA territories, there is a total of 25.998 MW on the waitlist. So far, 9.834 MW of solar projects have been completed under Track 1B.

**Table 6: Detailed Data: MASH Track 1B (Tenant) Applications by Status**

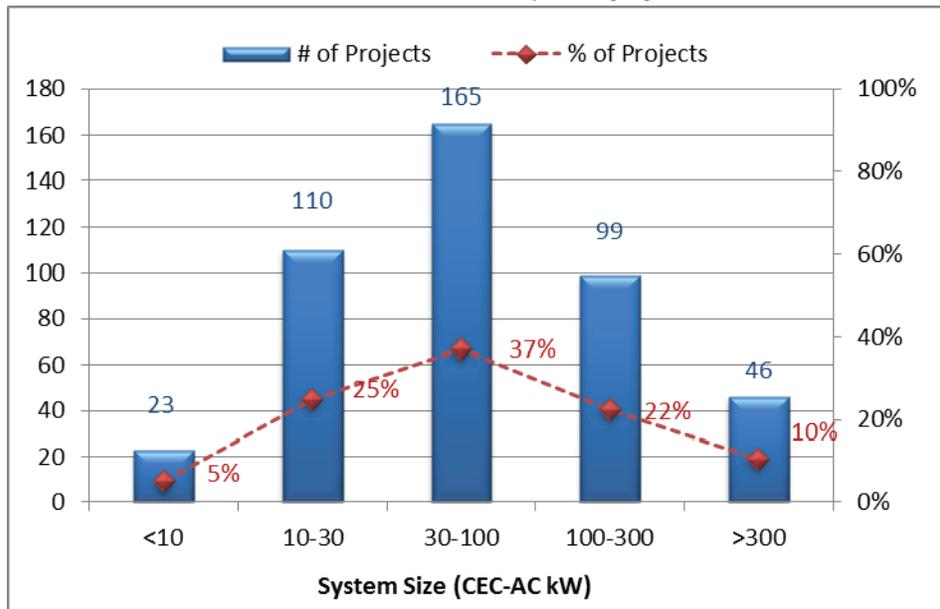
<b>UNDER REVIEW</b>	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
Capacity (MW)	0.000	0.042	0.206	<b>0.248</b>
Incentives	\$0	\$118,600	\$574,456	<b>\$693,056</b>
<b>RESERVED</b>				
Capacity (MW)	0.000	3.609	3.700	<b>7.309</b>
Incentives	\$0	\$9,661,932	\$10,235,689	<b>\$19,897,621</b>
<b>COMPLETED</b>				
Capacity (MW)	2.025	3.716	4.093	<b>9.834</b>
Total Incentives	\$7,600,354	\$13,951,778	\$14,532,787	<b>\$36,084,919</b>
<b>WAITLISTED</b>				
Capacity (MW)	9.650	10.635	5.713	<b>25.998</b>
Incentives	\$27,020,970	\$29,778,806	\$15,892,873	<b>\$72,692,649</b>

Data: Oct. 16, 2008 – Dec. 31, 2013

Source: PowerClerk and [www.californiasolarstatics.ca.gov](http://www.californiasolarstatics.ca.gov)

All system capacity measured in CEC-AC MW

**Chart 2: Projects by System Size**

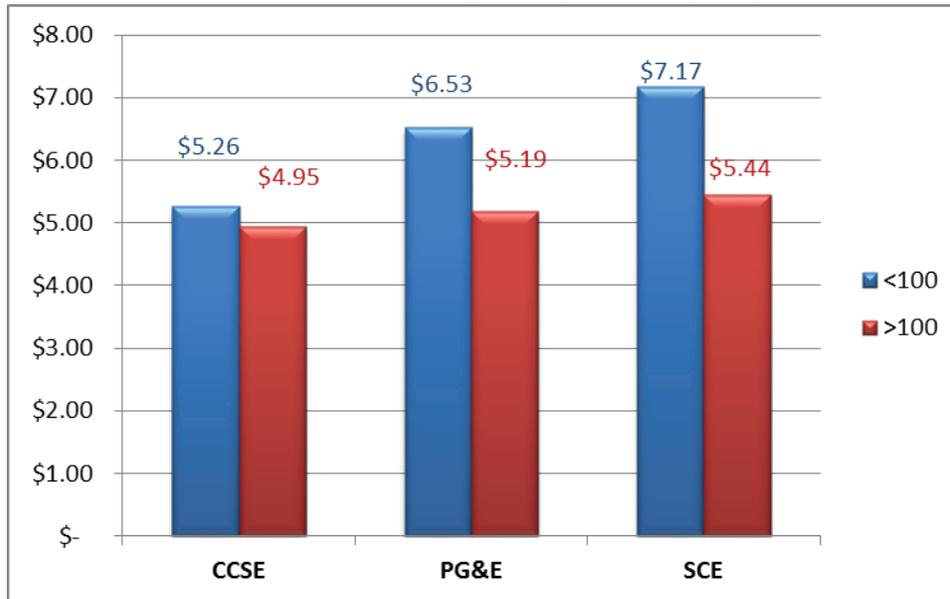


Data as of Dec. 31, 2013

Source: [www.californiasolarstatics.ca.gov](http://www.californiasolarstatics.ca.gov)

In analyzing overall system size per project, 443 active projects were reviewed, and the average project size is 76 kW. This is an increase of 5 kW from the average size reported in the last semiannual report. Chart 2 also indicates that a significant portion of projects across all PA territories are either small systems in the range of 10 to 30 kW or larger systems from 30 to 100 kW CEC-AC.

**Chart 3: Average Cost per Watt by Project Size**



Data as of Dec. 31, 2013

Source: [www.californiasolarstats.ca.gov](http://www.californiasolarstats.ca.gov)

Completed Track 1 Projects Only

When looking at the MASH Program, it is important also to look at the average cost per watt. In order to provide the most accurate cost information for this analysis, the data set used for Chart 3 is limited to projects that have been completed or are pending incentive payment. As shown in the chart, there is some cost variability between the PA territories. Overall, the average cost per watt for systems that are less than 100 kW CEC-AC are higher than those for systems 100 kW and greater. This is consistent with the general market CSI Program, where economies of scale lead to cost efficiencies in larger systems. The analysis consists of 293 Track 1 projects, and it is comprised of eight CCSE projects greater than 100 kW and 30 projects less than 100 kW, 20 projects greater than 100 kW and 98 less than 100 kW attributed to SCE applications and PG&E adds 17 projects greater than 100 kW and 122 less than 100 kW.

### 3.2. MASH Track 2 Incentives

Prior to the closure of Track 2, 13 distinct Track 2 projects were awarded across all PA territories. PA-specific Track 2 program information is in Table 7.

As reported in the previous Semi-annual Progress Report, PG&E completed all seven Track 2 projects in its service territory and CCSE completed their two projects. The remaining reserved application in SCE territory was completed in Q2 2013. At this time, all MASH Track 2 projects have been completed across all service territories.

In summary, a total of 1.296 MW of capacity was installed and \$7,977,314 of MASH Track 2 incentives were paid across all PA territories.

**Table 7: Summary Data: Total MASH Track 2 Applications by Status**

<b>Summary Data (Track 2)</b>				
<b>RESERVED APPLICATIONS</b>	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
Application (Number)	0	0	0	<b>0</b>
Capacity (MW)	0.000	0.000	0.000	<b>0.000</b>
Incentives	\$0	\$0	\$0	<b>\$0</b>
<b>COMPLETED APPLICATIONS</b>				
Application (Number)	2	7	4	<b>13</b>
Capacity (MW)	0.105	0.512	0.679	<b>1.296</b>
Incentives	\$818,964	\$2,540,968	\$4,617,382	<b>\$7,977,314</b>

Data: Oct. 16, 2008 – Dec. 31, 2013

Source: [www.californiasolarstatics.ca.gov](http://www.californiasolarstatics.ca.gov)

Note: All system capacity measured in CEC-AC MW

### 3.3. Virtual Net Metering Activity

As discussed in Section 2.2, virtual net metering (VNM) is offered to MASH participants as an option for the installation of solar systems on multi-unit affordable housing properties. Since the VNM tariffs became available to SCE, PG&E and SDG&E customers, property owners have used VNM to pass on the benefits to their tenants.

Participating tenants receive monthly allocation of the energy produced by the solar PV system resulting in a reduction of their electric bill. As of December 31, 2013, a total of 8,686 tenant units are being served by VNM tariffs offered by the utilities. The number of participating tenants by PA territory is in Table 8.

**Table 8: Tenant Units Served by Virtual Net Metering (VNM) Tariffs**

	<b>CCSE</b>	<b>PG&amp;E</b>	<b>SCE</b>	<b>Total</b>
MASH VNM Tenant Units	1,160	6,325	1,201	<b>8,686</b>

Data through Dec. 31, 2013

#### **4. Regulatory Update**

On December 18, 2013, a workshop was hosted by the CPUC to gather input and feedback from stakeholders on the implementation of Assembly Bill (AB) 217 (Stats. 2013, Ch. 609) and the impact to the MASH program. As of the writing of this report, it is anticipated that the CPUC will issue an Assigned Commissioner's Ruling regarding AB 217 implementation in Q1 2014.

#### **Conclusions**

- A total of \$60,415,747 in incentives have been disbursed and 17.993 MW of capacity have been installed through Track 1, with an additional 10.410 MW of capacity expected from active reservations.
- With the completion of the last MASH Track 2 project in SCE territory in Q2 2013, this concludes the MASH Track 2 program. All 13 Track 2 projects across all PA territories totaling \$7,977,314 in incentives and 1.296 MW of capacity are now complete.