2024 Distributed Energy Resources Installations in Disadvantaged Communities and Low-Income Households Snapshot Report

AB 2143 Annual Report

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Energy Division Report Contributors:

Amber Murakami-Fester

Markanday Ravi

Tory Francisco

Ryan Sullivan

Special Thanks to:

Maya Noesen, Sarah Lerhaupt, Christopher Westling, Erica Petrofsky

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Executive Summary

This report fulfills obligations in Assembly Bill (AB) 2143 (Carillo), approved in 2022, that added section 913.13[1] to the Public Utilities Code (PUC) and directed the California Public Utilities Commission (Commission) to submit annually to the legislature a report on the progress made to grow distributed energy resources (DER) among residential customers in low-income households and disadvantaged communities. This AB 2143 DER Report provides an overview of the number of solar and/or storage installations in low-income households and disadvantaged communities throughout the year 2024. This report also gives a summary of 2024 solar and/or storage installations incentivized by low-income programs administered by the Commission: the Disadvantaged Communities – Single-Family Solar Homes (DAC-SASH) program, the Solar on Multifamily Affordable Housing (SOMAH) program, and the Self-Generation Incentive Program (SGIP).

Analysis was conducted using the California Distributed Generation Statistics (DGStats) database. Program analysis was conducted using DAC-SASH, SOMAH, and SGIP program databases.

Notable findings in this report include:

- 2024 was the first full year in which the net billing tariff was in effect, and there was a notable increase in solar and storage installations within DACs.
- Third-party ownership of solar and storage systems outpaced non-third party owned systems in DACs in 2024.
- Solar and/or storage systems in DACs contributed 16.6% of the cost shift caused by all residential systems in 2024.
- A total of 823 solar and/or storage systems, and a total of 7.06 megawatts, were installed in DACs and low-income households through subsidized DER programs in 2024.
- Over 30,000 solar and/or storage systems were installed in DACs or low-income households in 2024, including both systems that were subsidized by DER programs and systems installed without subsidies.
- Commission-administered distributed energy resource programs spent a total of $211,255,780 on low-income/DAC installations in 2024. This total includes single-family installations and higher-cost multifamily projects.

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[1] PUC 913.13 reads:

The commission shall annually publish on its internet website and submit to the Legislature a report that includes both of the following:

> (a) A report on the progress made to grow the use of distributed energy resources among residential customers in disadvantaged communities and in low-income households.
>
> (b) An aggregated list, by census tract and ZIP Code, of all renewable electrical generation facilities, as defined in Section 2827, that began to receive service pursuant to a net energy metering contract or tariff during the preceding calendar year, including, but not limited to, median household income, home ownership, and racial composition, as applicable.

Legislative Background

AB 2143 (Carillo, 2022) added section 913.13 to the Public Utilities Code (PUC), directing the Commission to publish an annual report on the growth of DER among residential customers in low-income households and disadvantaged communities. PUC 913.13 also directed the Commission to create an aggregated list of all renewable electrical generation facilities that began to receive service on a net energy metering (NEM) contract or tariff during the preceding calendar year. The list of renewable electrical generation facilities must contain, for each facility, the associated census tract and ZIP code, median household income, home ownership status, and racial composition, as applicable.

This report meets the statutory requirement for an annual report to the Legislature on the progress made to grow DERs for use by low-income households and disadvantaged communities.

DACs Defined

The Commission defines a disadvantaged community (DAC) as a community that appears among the top 25% of census tracts identified by CalEnviroScreen statewide, as well as 22 census tracts in the highest 5% of CalEnviroScreen's Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data. This definition was used as the parameter for assessing data from DGStats.

Although several low-income solar and storage programs administered by the CPUC include California Indian Country, installations in California Indian Country are not distinguished in the 2024 snapshot analysis as the datasets analyzed did not identify which facilities were in California Indian Country.

Data Analysis

To support the statutory requirements of PUC 913.13, this analysis compiled and merged interconnection applications approved in the 2024 calendar year from California's three large investor-owned utilities (IOUs):

- Pacific Gas & Electric (PG&E)
- Southern California Edison (SCE)
- San Diego Gas & Electric (SDG&E)

Filters were applied to the combined IOU interconnection application dataset to isolate records of interconnected facilities that met the following conditions: 1) served residential customers, 2) were approved during the 2024 reporting year, 3) used renewable technologies consistent with the scope of AB 2143, 4) not inactive or decommissioned, and 5) received service under a net energy metering (NEM) or net billing tariff (NBT). These filters produced a clean subset of active 2024 residential renewable systems, forming the analytical foundation for evaluating distributed energy resource (DER) adoption.

Following extraction, system-level records were aggregated by both ZIP code and Census Tract to examine spatial trends. Each aggregation included counts of solar, storage, system size, cost statistics, and ownership characteristics. Demographic attributes such as median household income, homeownership rate, and racial

composition were then joined from the U.S. Census American Community Survey (ACS) 2023 and CalEnviroScreen 4.0 datasets to enable socioeconomic analysis.[2] Removal of unknown values in queried analyses may have led to discrepancies in total numbers of systems represented in figures 1-3 below.

Analyses focused on identifying differences in DER adoption across demographic and geographic dimensions, and highlighting patterns of participation in NEM and NBT by households residing in disadvantaged and low-income communities.

[2] Data from CalEnviroScreen 4.0 can be found at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40

2024 Snapshot

The year 2024 saw several changes to California solar policy begin to come to fruition and evolve the landscape of distributed generation installations. Following the publication of Decision (D.) 22-12-056 in 2022, the net energy metering (NEM) successor tariff known as "NEM 2.0" was formally sunset in 2023; customers applying for interconnection have taken service on the new net billing tariff (NBT) since April 15, 2023, making 2024 the first full year of NBT installations, excepting several outlying NEM projects. NBT primarily distinguishes itself from NEM 2.0 through incentivizing exports to the grid at times when energy demand is high, such as late summer evenings, thus incentivizing battery storage installations in lieu of standalone solar installations.

A look at the average sizing of PV systems and storage systems showed that non-DAC systems of either type were larger than DAC systems in 2024 (figures 1 and 2). The data shows that average system size in lower-income households or communities had smaller capacity sizes than in non-lower-income households or communities in 2024. Customer generation tariffs generally require that a system is sized to a customer's onsite load. It is unclear from the data whether it was prior customer usage or project cost affordability that had a stronger impact on this outcome.

Figure 1

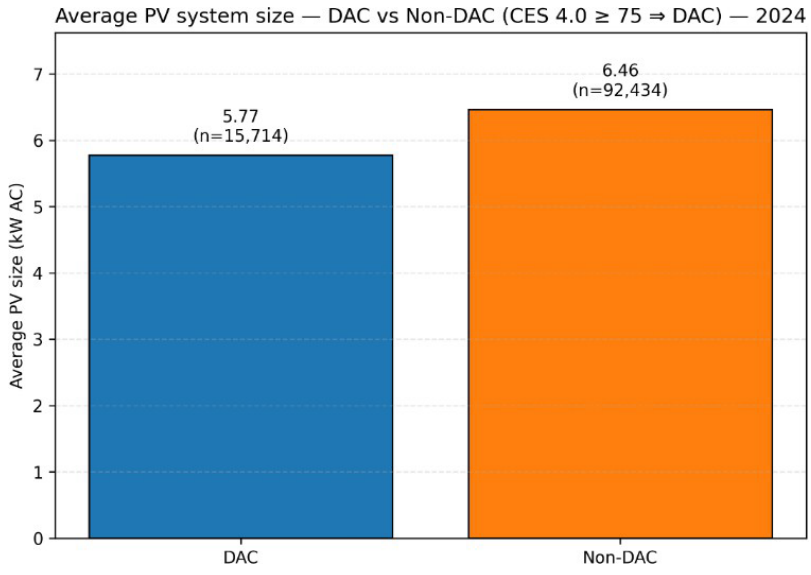
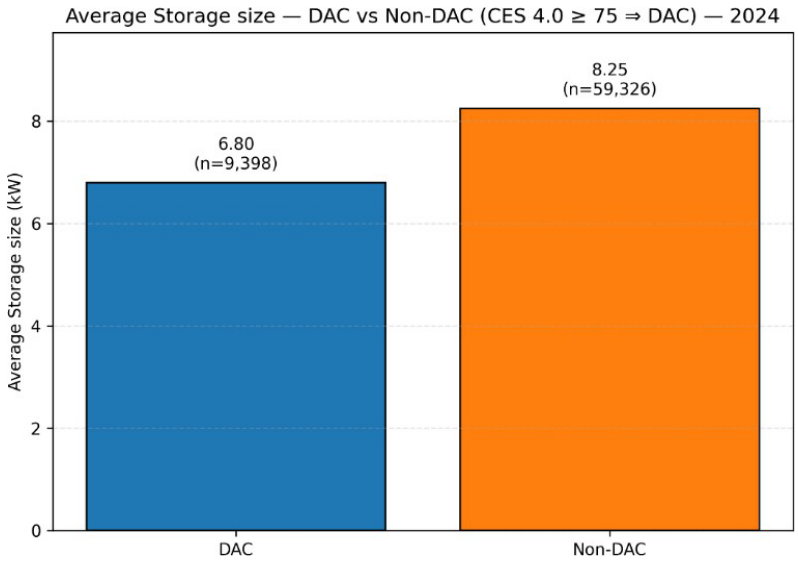
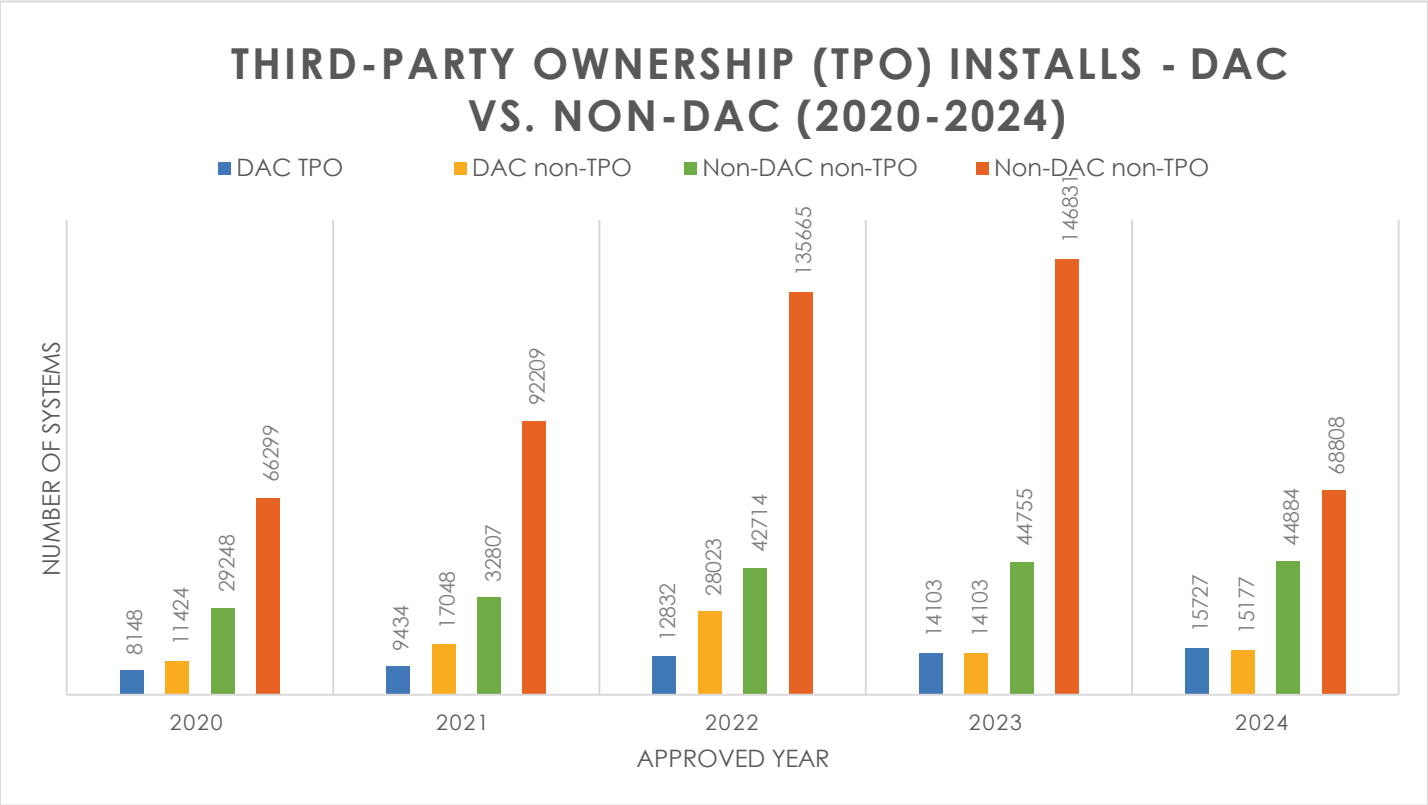


Figure 2



DAC installations in 2024 were more likely than non-DACs to involve third parties for financing solar and storage installations, which may reflect the higher financial barriers DAC households typically face in purchasing a system (figure 3). In DACs from 2020 to 2023, host-owned systems were more numerous than third-party owned systems, indicating that more DAC households bought their systems outright (through cash or bank loans) rather than financing structures like solar leases or power purchase agreements that would place ownership in the hands of third parties. However, third-party ownership of solar and storage systems outpaced non-third party owned systems in DACs in 2024. This may be due to the increased financial barrier (i.e. higher cost) to entry that adding battery storage on top of solar panels creates, compared to solar-only installations. It should be noted that the proportion of third-party owned systems in non-DACs also significantly increased; the percentage of third-party owned systems in non-DACs went from 23% in 2023 to roughly 40% in 2024.

Figure 3



Cost Shift in DACs

Net metering and net billing tariff costs in 2024 among residential and non-residential systems caused a roughly $7 billion cost shift onto customers without rooftop solar, making electric bills for those customers less affordable.[3]

Among installations completed in 2024, solar and/or storage systems among DACs contributed to 16.6% of the cost shift caused by all residential systems, amounting to a $1.2 billion bill impact on non-solar customers in and outside of DACs. This percentage was calculated using the 2024 filtered interconnection dataset, isolating NBT systems and summing total system size in kW AC for DACs (CalEnviroScreen ≥ 75%) and non-DACs (CalEnviroScreen < 75%). Records lacking valid CalEnviroScreen data were excluded from the calculation.

[3] 2025 Senate Bill 695 Report, page 3.

Ratepayer Subsidized Solar Program Summaries

Program Overviews

The CPUC administers several programs that support the adoption of distributed energy resources in low-income households and disadvantaged communities. Past and ongoing programs include:

- **Single-family Affordable Solar Homes (SASH):** Under the California Solar Initiative (CSI), this program (established by the Commission) provided solar incentives on qualifying affordable single-family housing. This program has been closed as of 2023.
- **Multifamily Affordable Solar Housing (MASH):** Established in 2008 by the Commission, the MASH Program provided solar incentives on qualifying affordable housing multifamily dwellings. MASH was the low-income, multifamily component within the California Solar Initiative program. This program has been closed as of 2021.
- **Solar on Multifamily Affordable Housing (SOMAH):** The SOMAH program was established by statue Public Utilities Code 2870 (AB 693, Eggman, 2015). SOMAH provides incentives for solar energy photovoltaic systems and integrated storage for multifamily affordable housing. The program closes in 2032.
- **Disadvantaged Communities – Single-family Solar Homes (DAC-SASH):** Modeled after the retired SASH program, DAC-SASH enables income-qualified homeowners in DACs to receive no-cost rooftop solar installations. DAC-SASH is ongoing and was established by the Commission. It is slated to sunset in 2030.
- **Self-Generation Incentive Program (SGIP):** SGIP was established by Public Utilities Code 379.6. Greenhouse Gas Reduction Fund SGIP was established by Public Utilities Code 379.10. SGIP provides incentives for storage installed on the customer's side of the utility meter. Low-income customers can also receive an incentive for solar paired with storage now following the establishment of the Residential Solar and Storage Equity (RSSE) budget in D.24-03-071, pursuant to AB 209, beginning 2025 for all electric utility customers. Ratepayer-funded SGIP closed on December 30, 2025. Greenhouse Gas Reduction Fund SGIP, for low-income solar and storage systems, closes on June 30, 2028.

Solar programs for low-income households that do not assist in the direct installation of on-site (i.e. customer-sited) distributed energy resources, such as the Disadvantaged Communities Green Tariff (DAC-GT) program that provides utility scale clean energy at a 20% bill discount for qualifying households, are not analyzed in this report.

Figure 4

Solar and/or Storage Installations in 2024 by Program

	DAC-SASH	SOMAH	SGIP (storage only)*	Total
Total solar and/or storage installations 2024	678	131	5,704	6,520
Total solar and/or storage installations in DACs or low-income households in 2024	678	29	110	823
Total MWs of solar/storage projects installed in 2024	3.07	14.73	47.4	65.2
Total MWs of solar/storage projects installed within DACs or low-income households in 2024	3.07	2.99	1	7.06

**SGIP did not provide incentives for solar installations prior to 2025. All figures in this report represent storage installations only.*

DAC-SASH 2024 Overview

The Disadvantaged Communities – Single-family Solar Homes (DAC-SASH) program, modeled after the Single-family Affordable Solar Homes (SASH) Program, provides financial incentives for the installation of rooftop solar generating systems. The incentives assist income-qualified DAC customers in overcoming barriers to the installation of onsite solar energy, such as lack of capital or credit needed to finance a solar installation.

The program was developed in compliance with Assembly Bill (AB) 327 (Perea, 2013), which directed the Commission to create a successor to the existing Net Energy Metering (NEM) tariff and obligated the Commission to enable the growth of renewable distributed generation among disadvantaged communities. In D.18-06-027, issued June 2018, the Commission introduced the DAC-SASH program along with two other programs, Disadvantaged Communities - Green-Tariff (DAC-GT) and Community Solar Green Tariff (CSGT). On January 4, 2019, GRID Alternatives (GRID) was selected as the statewide program administrator for DAC-SASH, overseeing all aspects of program implementation.

In 2024, DAC-SASH saw 678 projects completed. GRID reported that this number was slightly lower than previous years due to challenges around newly integrating solar PV systems with battery storage, particularly in navigating Self-Generation Incentive Program (SGIP) approvals and managing equipment procurement. Other challenges included financial barriers, such as clients' inability to afford roof repairs necessary prior to installation.

Figure 5*

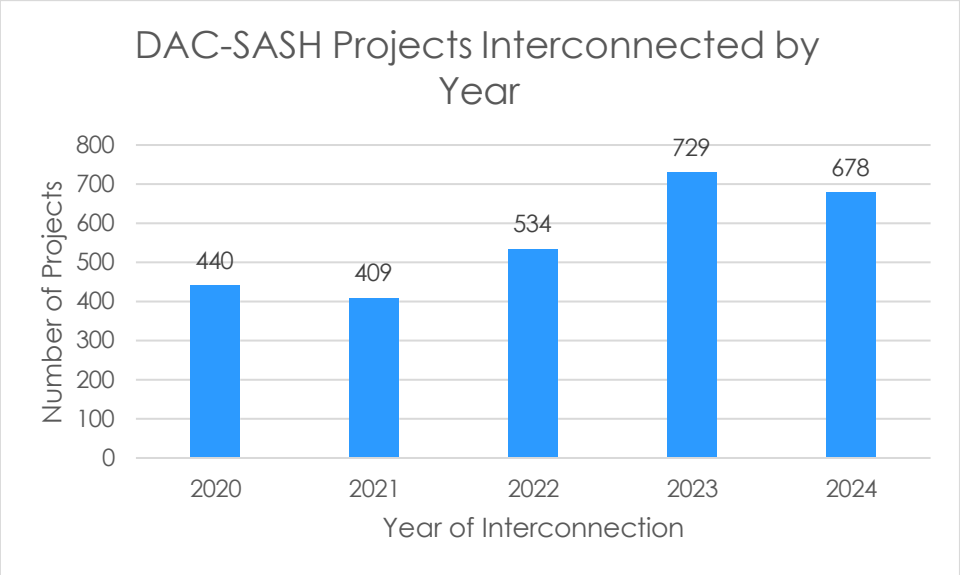


**Figure 5 excludes storage-only projects, which were included in figure 4.*

GRID notes that a record number of applications were submitted and approved in 2024, with 1,241 projects submitted and 1,230 projects approved.

The DAC-SASH budget is funded largely by the $10 million a year the Commission authorized to be collected for the program from 2019 to 2030 for a total of $120 million. In 2024, the program budget was $60 million. The DAC-SASH program expensed $10,131,752 from Q1 to Q4 of 2024. A breakdown of the budget is in the table below.

	Budget %	Budget through 2024 ($ in millions)	Expensed Q1-Q4 2024	Expensed prior to 2024	Remaining in 2024 Program Budget
Incentives	85%	$51,000,000	$8,731,752	$26,890,176	$15,378,072
Administration	10%	$6,000,000	$1,000,000	$5,000,000	($0)
Marketing and Outreach	4%	$2,400,000	$400,000	$2,000,000	$0
Evaluation	1%	$600,000	Budget resides w/ CPUC	Budget resides w/ CPUC	Budget resides w/ CPUC
Total Program Budget	**100%**	$60,000,000.00	$10,131,752	$33,890,176.00	$15,378,072

GRID reports that it continues to put in effort to integrate DAC-SASH with other clean energy programs. In 2024, GRID ramped up its efforts to integrate more of its program participants with SGIP offerings, particularly in anticipation of a new Residential Solar and Storage Equity budget established under SGIP.

Nearly 60% of applications approved in 2024 under DAC-SASH were paired with SGIP; in 2023 only 4% of approved DAC-SASH applications were paired with SGIP.

SOMAH 2024 Overview

The Solar on Multifamily Affordable Housing (SOMAH) Program provides subsidies for the installation of solar photovoltaic (PV) systems on qualifying multifamily affordable housing properties (i.e., multifamily housing financed with low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants).[4] To qualify for SOMAH incentives, the criteria that year required that properties must be existing deed restricted properties, have at least five units, and separately metered tenant units. They must also satisfy either having A) 80% of their total tenant households with incomes at or below 60% of the area median income or B) be in a DAC that scores in the top 25% of census tracts statewide, as identified by the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of the California Environmental Protection Agency (CalEPA), or C) be owned by CA Native Tribe, Public Housing Authority or Public Housing Agency.

AB 693 directed the Commission to institute a new program intended to make qualifying solar energy systems accessible to low-income and disadvantaged communities. In December 2017, the Commission issued D.17-12-022 which created the SOMAH Program and established program goals and eligibility requirements. The primary goal of this program is to install solar energy systems that have a generating capacity equivalent to at least 300 MW (CEC-AC) on qualified multifamily affordable housing properties through December 31, 2032, and to increase workforce development and training activities to support economic development in underserved communities. The program is funded by the utilities' greenhouse gas auction proceeds that would otherwise be returned to ratepayers via the California Climate Credit.

SOMAH publishes an annual Marketing, Education, and Outreach Plan in which the program administrator analyzes the potential applicant pool. The 2024 MEO Plan showed that Central Valley Region and Los Angeles Valley had the highest concentration of likely eligible properties in DACs. This assessment allows the team to focus its outreach efforts to help raise the number of DAC participants.[5]

SOMAH's total incentive budget in 2024 was $57,021,032.[6] In 2024, there were 434 active applications, 245 completed projects, and 377 that were withdrawn or cancelled.[7] From 2019 to 2024, the program's cumulative total administrative expenses were $51.4 million.

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[4] Decision 24-11-006 allowed incentives for integrated storage along with the solar system and this became available in April 2025.

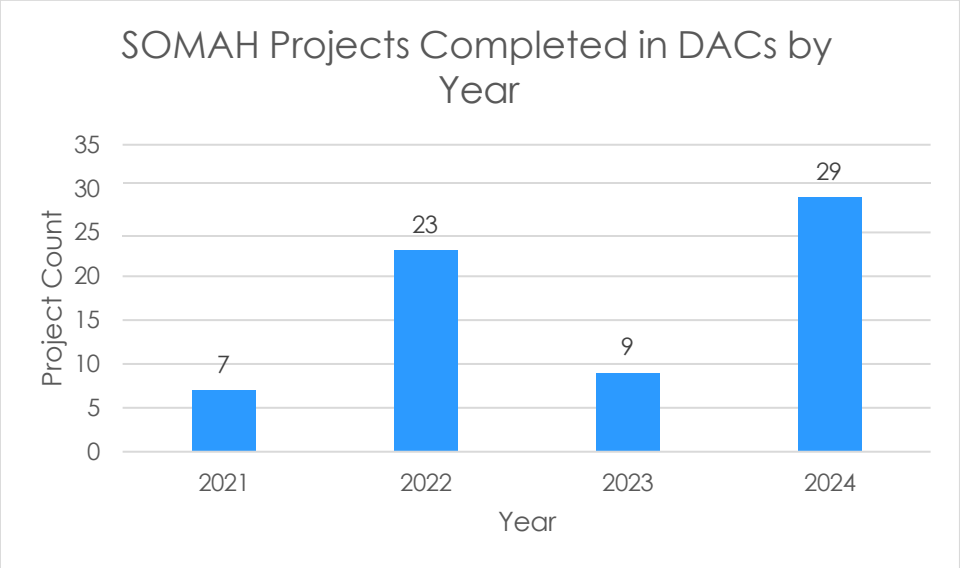
[5] 2024 MEO Plan Figure 1 "Regions with Highest Concentration of Properties in DACs"

[6] Program Funding | SOMAH: https://calsomah.org/program-funding

[7] SOMAH Semi-Annual Progress Report, January 2025, Figure 5

SOMAH's metrics have shown improvement in 2024, when compared to past years. There were more projects completed and the percentage of projects in disadvantaged communities remained steady. In 2024, the completed projects were about 28% located in DACs, compared to the program's historical DAC participation rate of 30%.[8] The SOMAH Program Administrator also reported that 2024 had the second highest annual volume in applications, with 210 submitted.[9]

Figure 6



In 2024, 29 projects were completed under the SOMAH program in DACs (Figure 6). For this report, projects were considered completed when their incentive claim milestones were approved.

SOMAH is working well at reaching properties where tenants are both low-income and located in a disadvantaged community. In 2024, SOMAH program administrator reported that the majority of properties (with multiple eligible criteria satisfied) were those that were 1) majority of tenants are low-income and 2) located in a DAC.[10]

[8] SOMAH Semi-Annual Program Report January 2025, Figure 13 "Figure 13 – Property Eligibility by Reservation Status since Program Start" and Figure 14 "Property Eligibility by DAC/Tribal Ownership Status since Program Start"

[9] SOMAH Semi-Annual Progress Report, January 2025, page 18

[10] SOMAH Semi-Annual report, January 2025, page 27 and Figure 11

SGIP 2024 Overview

The Self-Generation Incentive Program (SGIP) provides incentives for qualifying distributed energy systems installed on the customer's side of the utility meter. Qualifying technologies include wind turbines, waste heat to power technologies, pressure reduction turbines, internal combustion engines, microturbines, gas turbines, fuel cells, linear generators, advanced energy storage systems, and combined solar and energy storage systems. This report focuses on solar and storage energy systems for residential customers.

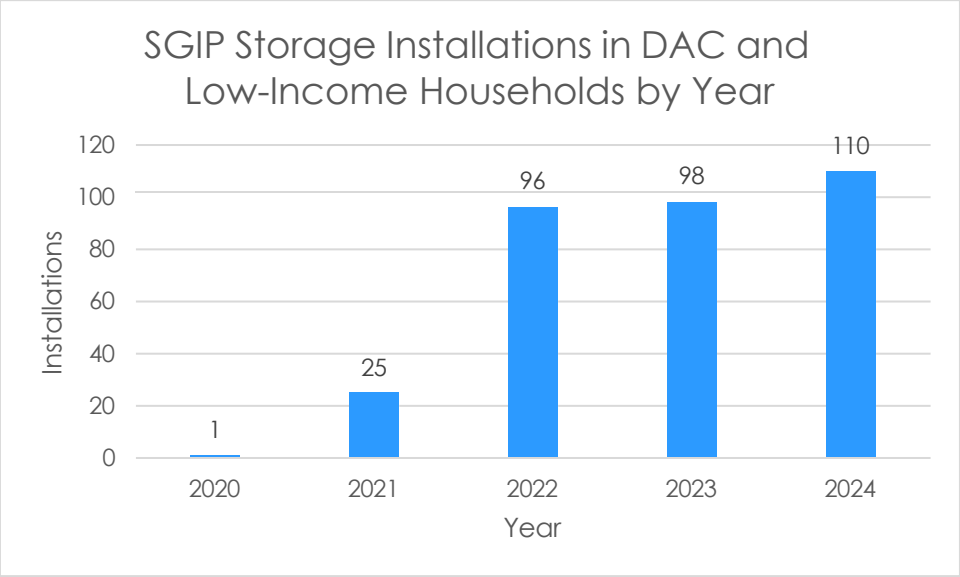
Any electric utility customers statewide are eligible for solar and storage installations under SGIP if any of the following applied: 1) Customer lives in a single-family home and household income is at 80% of Area Median Income (AMI), as determined by the Housing and Urban Development, 2) customer lives in a single-family home and has already participated in or has reserved incentives in the SASH or DAC-SASH programs, or currently are eligible for low-income electricity billing programs California Alternative Rates for Energy (CARE), Family Electric Rate Assistance (FERA), or Energy Savings Assistance (ESA), 3) customer lives in an apartment considered low-income housing with at least five rental units, and either is located in a DAC or at least 80% of the apartment building residents have incomes at or below 60% of area median income (AMI),[11] 4) customer lives in an apartment and property has already participated in the SOMAH or MASH programs.

SGIP covers most of the cost of installing solar and storage for low-income customers. SGIP has several other budgets for IOU customers that target general market, equity, and resiliency customers with a range of incentive levels for storage only. SGIP can be paired with other low-income solar programs (such as DAC-SASH or SOMAH) where SGIP provides the storage incentive and the other program provides the solar incentive. Customers do not have to be eligible for another program to participate if they meet SGIP's eligibility criteria.

SGIP's available incentive budget in 2024 was $147.3 million with $21.5 million reserved for low-income customers and the administrative budget was $39.6 million. In 2024, $28.6 million in incentive funds were spent or reserved for SGIP projects, with $2 million going towards low-income projects, and $10.3 million was spent on administrative tasks. In 2024, a total of 110 storage systems were installed for low-income customers or customers in DACs under SGIP (figure 7). SGIP did not incentivize solar installation in 2024 or prior.

[11] Area median income is determined by Housing and Urban Development: https://www.huduser.gov/portal/datasets/il.html

Figure 7



In 2024, D.24-03-071 established the Residential Solar and Storage Equity (RSSE) budget pursuant to AB 209 to provide statewide incentives for low-income customers' paired solar and storage systems. The RSSE incentives were made available for reservation beginning June 2025 for most electric utility customers and in Los Angeles Department of Water and Power (LADWP) territory at the end of September 2025, opening a funding source for more installations for both solar and storage. All RSSE funds have been fully reserved as of November 2025.