

Disadvantaged Communities – Single-family Solar Homes
(DAC-SASH) program

Semi-annual Program Status Report January 2020



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1. Program Summary

The Disadvantaged Communities – Single-family Solar Homes (DAC-SASH) program is overseen by the California Public Utilities Commission (CPUC, or Commission) and provides incentives for photovoltaic (PV) solar systems to qualifying low-income homeowners located in disadvantaged communities¹ within the service territories of Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric (SDG&E), (collectively, the California investor-owned electric utilities or IOUs). GRID Alternatives (GRID), a non-profit solar contractor, is the statewide Program Administrator for the DAC-SASH Program. DAC-SASH is largely designed based on the Single-family Affordable Solar Homes (SASH) program, which has successfully operated in California’s IOUs since 2008 and is also administered statewide by GRID.

The overall goal of DAC-SASH is to provide opportunities for low-income homeowners within disadvantaged communities to overcome barriers to accessing on-site, solar PV systems to decrease electricity usage and bills without increasing monthly household expenses. Low-income families face myriad barriers to accessing solar, including financial; lack of marketing and outreach; educational and linguistic; distrust of outside entities and governments; and structural barriers like housing types and roof condition. GRID’s experience has demonstrated that dedicated, carefully designed and executed low-income solar programs can overcome these barriers and provide not just access, but also meaningful community co-benefits. GRID has designed the DAC-SASH program to build off the success of the existing SASH program in broadly addressing the primary barriers to solar access for this market segment.

¹ Disadvantaged communities for the DAC-SASH program are currently defined as census tracts scoring in the top 25% statewide on the CalEnviroScreen 3.0 map. Homeowners in one of 22 additional census tracts that are in the top five percent of pollution burden but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic data are also eligible. <https://oehha.ca.gov/calenviroscreen/maps-data>

GRID's program model represents a comprehensive, holistic approach for a very hard-to-reach population. GRID's model for DAC-SASH, based on SASH, is an integrated, turn-key model in which GRID takes responsibility for the entire project process from client outreach through contracting and system installation. The approach incorporates energy education, referrals to complementary services, and workforce development and job training into the program. This proven model ensures efficient program delivery while maximizing benefits to participating families and communities and maintaining iron-clad consumer protections for a vulnerable population.

In implementing the DAC-SASH program, GRID provides opportunities for local volunteers and job trainees to assist with installations, engage their communities, and to participate in CA energy programs. Every project includes a workforce development component, and opportunities for individuals to receive on-the-job training and access resources to assist in obtaining long-term employment. GRID partners with job training organizations (JTOs) around the state, and will be focusing on JTOs located in disadvantaged communities and targeting job trainees residing in disadvantaged communities for the DAC-SASH workforce development initiatives.

2. Background

Assembly Bill (AB) 327 (Perea), Stats. 2013, ch. 611 directed the California Public Utilities Commission (Commission) to develop a successor to then-existing Net Energy Metering (NEM) tariffs, and also required the Commission to develop specific alternatives designed to increase adoption and growth of renewable generation in disadvantaged communities (DACs). The Commission issued Decision (D.) 18-06-027 (Decision) on June 21, 2018, which adopted three new programs intended to promote the installation of renewable generation among residential customers in disadvantaged communities (DACs): the DAC-Single-family Solar Homes (DAC-SASH) program, the DAC-Green Tariff program, and the Community Solar Green Tariff program.

The Decision describes the intent with the creation of the DAC-SASH program:²



“The DAC – Single-family Solar Homes (DAC-SASH) program, modeled after the Single-family Affordable Solar Homes (SASH) program, will provide assistance in the form of upfront financial incentives towards the installation of solar generating systems on the homes of low-income homeowners. The DAC-SASH program will be available to low-income

customers who are resident-owners of single-family homes in DACs. Unlike traditional SASH, eligibility for DAC-SASH is not limited to designated affordable housing units, and so will be available to a broader group of homeowners than the current SASH program. The incentives provided through DAC-SASH will assist low-income customers in overcoming barriers to the installation of solar energy, such as a lack of up-front capital or credit needed to finance solar installation.”

The Commission’s experience with a non-utility Program Administrator (PA) successfully managing the SASH program over the last decade informed its decision to have the DAC-SASH program managed by a single statewide PA, selected through a competitive bidding process.³ The DAC-SASH PA Request for Proposals (RFP) was released on October 19, 2018 and the PA role subsequently awarded to GRID Alternatives (GRID, or PA) on January 4, 2019.

² D. 18-06-027: Alternate Decision Adopting Alternatives to Promote Solar Distributed Generation in Disadvantaged Communities. 21 June 2018, p. 2-3.

³ D. 18-06-027, p. 33.

To qualify for DAC-SASH, homeowners must live in one of the top 25 percent most disadvantaged communities statewide using the [CalEnviroScreen](#),⁴ and be a billing customer of Pacific Gas & Electric (PG&E), Southern California Edison (SCE), or San Diego Gas & Electric (SDG&E). Homeowners must also meet [income qualifications](#) as denoted by the income guidelines of either the California Alternate Rates for Energy (CARE) program or the Family Electric Rate Assistance (FERA) program.

Complete details of the DAC-SASH program including eligibility and application processes can be found in the [DAC-SASH Program Handbook](#).

Both D.18-06-027 and GRID's DAC-SASH Administration Contract with SCE delineate reporting requirements for this semi-annual progress report,⁵ which will be published by January 30 and July 30 each year and detail the progress of the prior two calendar quarters. GRID includes sections in this report to comply with the reporting requirements, such as including information on application and installation progress, job training outcomes, energy efficiency education and referrals, subcontractors, and GRID's assessment of program barriers and ideas for program design modifications.

3. Q3-Q4 2019 Overview

GRID and SCE executed a contract for program administration on April 2, 2019, after which point GRID began to undertake program design and implementation activities statewide. These activities laid the groundwork for program launch, including the development of a comprehensive Program Handbook and Program Implementation Plan (PIP), initial marketing and outreach strategies, and development of updated systems and databases for collecting

⁴ Homeowners in one of 22 additional census tracts that are in the top five percent of pollution burden but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic data are also eligible. See D.18-06-027 at Conclusion of Law 3.

⁵ D.18-06-027, at pg. A-4, and Task 6(D)(1-19) in SCE PO 4501098383 Statement of Work, April 2, 2019.

project information, among other activities. The Commission approved Resolution E-5020 on September 12, 2019, which authorized the DAC-SASH Program Handbook and Program Implementation Plan (PIP).⁶

Primary program launch activities in Q3-Q4 2019 included, but were not limited to: creating and operationalizing a new, detailed time tracking system for labor expenses across the state; creating templates for internal and external invoicing and marketing materials/client-facing documents and contracts; writing a marketing, education, and outreach (ME&O) plan which was approved by the Energy Division in December 2019; developing new marketing strategies based on DAC-SASH eligibility requirements; executing a new contract for public data reporting on CalDGStats and creating reporting templates; and, initiating third-party field inspections.

Ongoing activities that were started in Q4 2019 and will continue into 2020 include ramping up marketing and outreach efforts in DACs; refining a resume bank and job board; partnering with community-based organizations to enhance outreach efforts; strengthening and creating partnerships with job training organizations (JTO) within DACs; setting up an annual financial audit; and refining quality control (QC) processes to verify project accuracy.

GRID's regional offices began processing DAC-SASH applications and scheduling installations in the summer of 2019, ramping up in Q3 and Q4, particularly in PG&E territory as the existing SASH program incentives became encumbered in Q4. By the end of Q4 2019, DAC-SASH had already posted strong results, demonstrating the high demand for affordable solar in disadvantaged communities.

⁶ The DAC-SASH Program Handbook stipulates that projects interconnected in 2019 qualify for DAC-SASH funding, provided the project meets all program requirements and was completed (interconnected) after January 1, 2019. https://gridalternatives.org/sites/default/files/DACSASH%20Handbook_Final_Approved%20via%20Resolution%20E5020_9.12.19.pdf. At pg. 12

As of December 31, 2019, 226 PV systems have been interconnected using DAC-SASH incentives, 517 projects have been reserved and are awaiting installation or interconnection, and another 547 applications statewide have been submitted and are under review.⁷

To attract DAC-SASH clients, GRID's regional offices are implementing strategies that have proven successful previously with the SASH program, such as fostering new relationships and strengthening existing partnerships with community partners, volunteers, job training programs, local businesses, and municipalities, and galvanizing on word-of-mouth testimonials from past program participants, as direct referrals from existing clients have proven to be one of GRID's best marketing tool for acquiring new clients. Given the narrow geographic and income eligibility requirements for DAC-SASH, as further detailed in Section 11, Program Assessment, Barriers, and Planned Modifications of this report, GRID's outreach teams are encountering challenges in many areas of the IOU territories in identifying qualified homeowners.

4. Program Budget

The Commission has authorized \$10M per year to be collected for DAC-SASH, beginning on January 1, 2019, and continuing through December 31, 2030. The Decision describes that the state's IOUs will first collect DAC-SASH program funding through available greenhouse gas (GHG) allowance revenues. In the event that there are insufficient funds available from the GHG allowance revenue, then the DAC-SASH program will be funded through customer rates via public purpose funds.⁸ The total \$120M program will be funded by Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) according to these percentages:

⁷ Because this is the first semi-annual report for DAC-SASH, these numbers include totals from Q1 and Q2 of 2019.

⁸ D. 18-06-027, p. 31.

Table 1: Budget Allocations by Utility Territory

	PG&E	SCE	SDG&E	Total
Budget %	43.7%	46.0%	10.3%	
Year One (2019) Budget (\$ in millions)	\$4.37	\$4.60	\$1.03	\$10.00
Remaining Program Budget (2020-2030) (\$ in millions)	\$48.07	\$50.60	\$11.33	\$110.00
Total Program Budget (\$ in millions)	\$52.44	\$55.20	\$ 12.36	\$120.00

Table 2: Budget Allocations by Program Functions

	Budget %	Year One (2019) Budget	Expensed through Q4 2019	Remaining in Year One (2019) Program Budget ⁹
Incentives	85%	\$8,500,000	\$2,083,765	\$6,416,002
Administration	10%	\$1,000,000	\$755,649	\$244,351
Marketing and Outreach	4%	\$400,000	\$269,933	\$130,067
Evaluation	1%	\$100,000	Budget resides w/ CPUC	Budget resides w/ CPUC
Total Program Budget	100%	\$10,000,000	\$3,110,100	\$6,789,900

⁹ Unused funds will roll over to the subsequent calendar year, any money not allocated to specific projects of program expenses by December 31, 2030, will be returned to ratepayers. D. 18-06-027, p. 31.

5. Program Growth and Project Details

Table 3 below summarizes the status of DAC-SASH applications through Q4 2019 based on the application inspection's approval date.

Table 3: Applications by Status and Utility Service Territory in 2019

Application Status	Number of Applications				Total kW (CEC-AC)	Total Incentives (\$ millions)
	PG&E	SCE	SDG&E	Totals		
1: Applications under review	26	74	0	100	340.0*	\$1.02*
2: Confirmed Applications/Reservations	25	22	7	54	187.3	\$0.56
3: Installed	200	53	7	260	896.7	\$2.69
Total (all applications and installs)	251	149	14	414	1,424.0	\$4.27

Data pulled 1/26/20. *Step 1 system sizing (kW) and incentives (\$) are estimates based on an average system size of 3.1kW CEC-AC and incentive level of \$3/W. System designs are not completed until the Applicant is confirmed to meet all other program requirements, but typically >90% of projects in Step 1 will move forward to Confirmed or Reserved status.

Chart 1: Interconnected Projects by Quarter

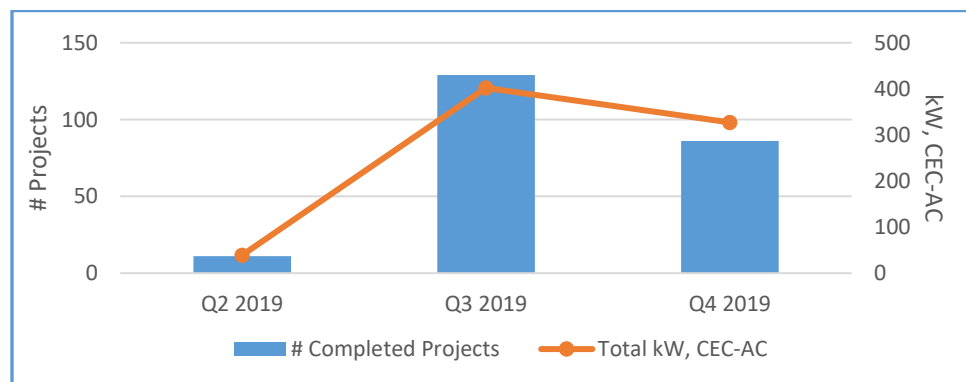
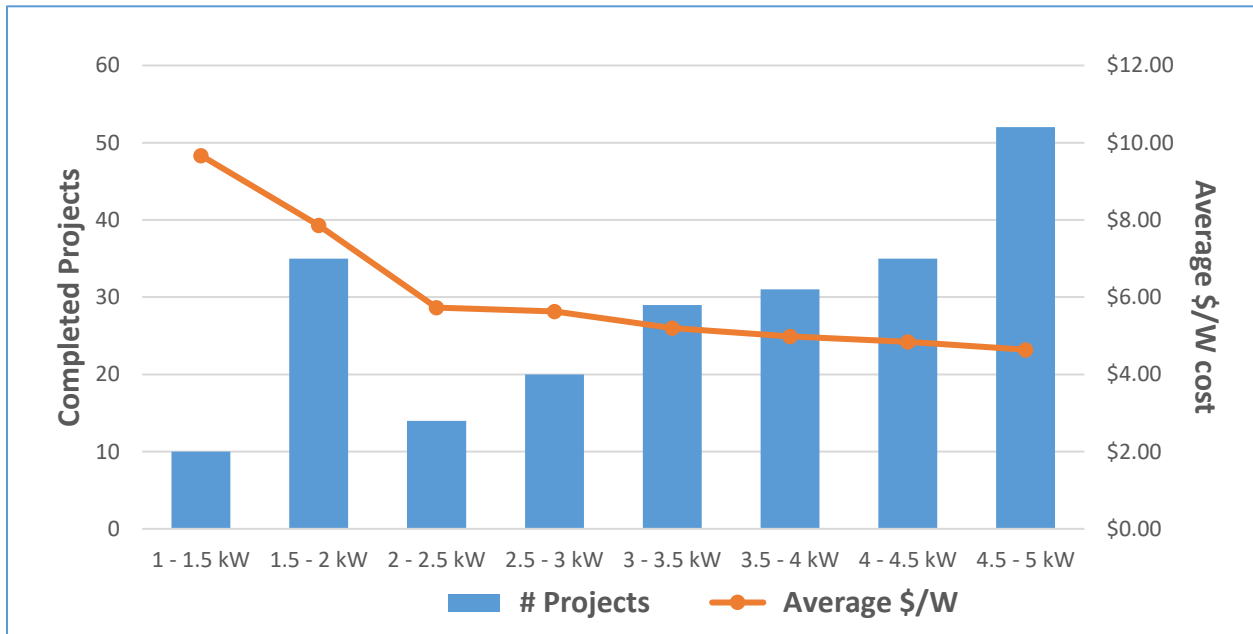


Chart 1 above illustrates the program's progress in 2019, with over 226 projects interconnected through Q4. These projects represent 768 kW, CEC-AC in installed capacity and have a combined expected annual output of 1.2 million kWh, CEC-AC.

Chart 2 below indicates that about 35% of installed DAC-SASH PV-systems are 3kW (CEC-AC) or less, the average DAC-SASH installed project is around 3.4kW (CEC-AC) and the average expected annual kWh is 5,324 kWh. Where the system size is not constrained by roof space, DAC-SASH system sizing is based upon the client's annual usage (kWh) minus the energy efficiency savings the client may realize by adopting basic energy efficiency measures, and is capped at 5kW (CEC-AC).

Chart 2: Interconnected Projects by System Size



6. Incentives and Project Financing

The DAC-SASH program offers one non-declining incentive level of \$3/W (CEC-AC) for all projects. GRID's average cost to install DAC-SASH systems in 2019 was \$5.24 per Watt (CEC-AC), and varied by system size as demonstrated in Chart 2: DAC SASH Completed Projects by System Size. This average system cost does not include the complete marketing and outreach expenses required to reach the target audiences and educate them about the program benefits. The cost for DAC-SASH installations may also be higher than a general market installation because GRID is bringing teams of job training students and volunteers to assist with the installation, making it a teaching opportunity and a classroom on the roof for solar job trainees.

On an individual project basis, GRID consults with homeowners who have a financing gap between their system costs and available incentive to explore individual financing options, such as a client contribution or private loan, and has experienced limited success with this challenge. In most instances GRID has aided in overcoming the gap financing obstacle for families by contributing the organization's own non-profit fundraising dollars and additional resources toward covering the gap between the available incentive and the project costs, thereby allowing more families to go solar with the DAC-SASH Program than otherwise would have been able to do so.

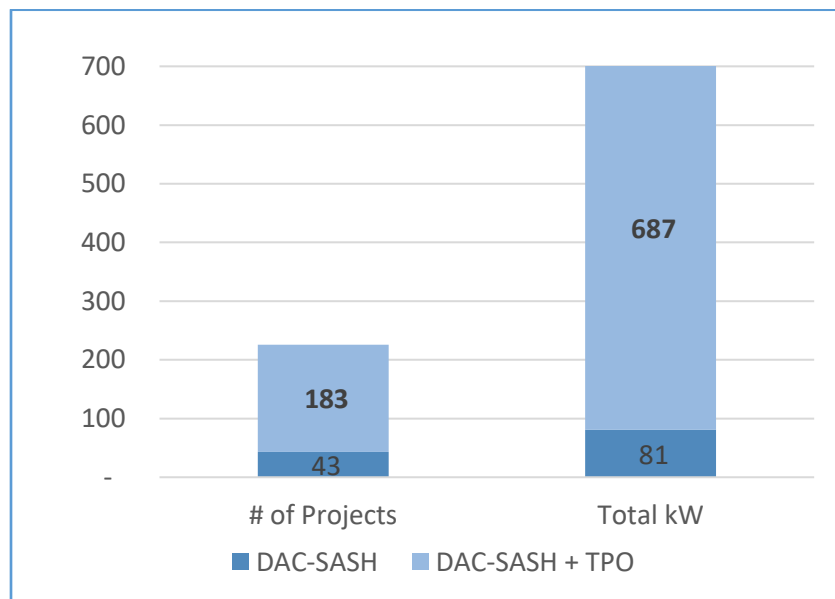
GRID's contributions toward covering these financing gaps include: general philanthropy, in-kind equipment donations, proceeds from a third-party ownership model, and corporate sponsorships. GRID's long-standing partnerships with major equipment manufacturers including SunPower, Enphase Energy, IronRidge, Jinko Solar, and Schneider Electric helped cover many DAC-SASH clients' gap funding requirements in 2019, and GRID expects to utilize philanthropic and in-kind



contributions from donors and sponsorships to augment gap financing efforts in future years. Given a depressed economy in many disadvantaged communities, and the inability for most households to assume more debt, gap financing remains a potential obstacle for low-income families to participate in the DAC-SASH Program.

Through its unique “families-first” TPO model, GRID is able to leverage the Federal Investment Tax Credit (ITC) to help finance DAC-SASH projects, while providing additional benefits to participating families, including a performance guarantee, system monitoring, and 25-year warranty coverage. With Resolution E-5030 (September 12, 2019), the Commission approved GRID’s TPO model that was previously outlined and approved in for the SASH program in Resolutions E-4719 (June 25, 2015) and E-4829 (March 2, 2017). The primary partner for GRID’s TPO model in DAC-SASH is currently Sunrun. As seen in Chart 3 below, of the 226 total DAC-SASH projects completed, over 80% are third-party owned and nearly 90% of the total DAC-SASH capacity installed.

Chart 3: Projects with Third-party Ownership (TPO) Funding



7. Marketing and Outreach



In Q4 2019, GRID completed a comprehensive 2020 Marketing, Education and Outreach (ME&O) plan for the DAC-SASH program that can be accessed on GRID's website.¹⁰ The 2020 DAC-SASH ME&O plan provides full details on planned ME&O activities, key performance indicators, the ME&O budget, and includes sample marketing collateral that GRID has developed for the program. As part

of the reporting requirements for the program, GRID will assess progress toward achievement of its ME&O KPIs and submit an updated ME&O plan in December of each calendar year. GRID provides a streamlined and simplified overview of its marketing strategies for this semi-annual report, summarized below.

GRID Alternatives currently has eight California regional offices, located in Oakland (PG&E), Willits (PG&E), Los Angeles (SCE), San Diego (SDG&E), Fresno (SCE/PG&E), Riverside (SCE), Chico (PG&E), and Sacramento (PG&E).

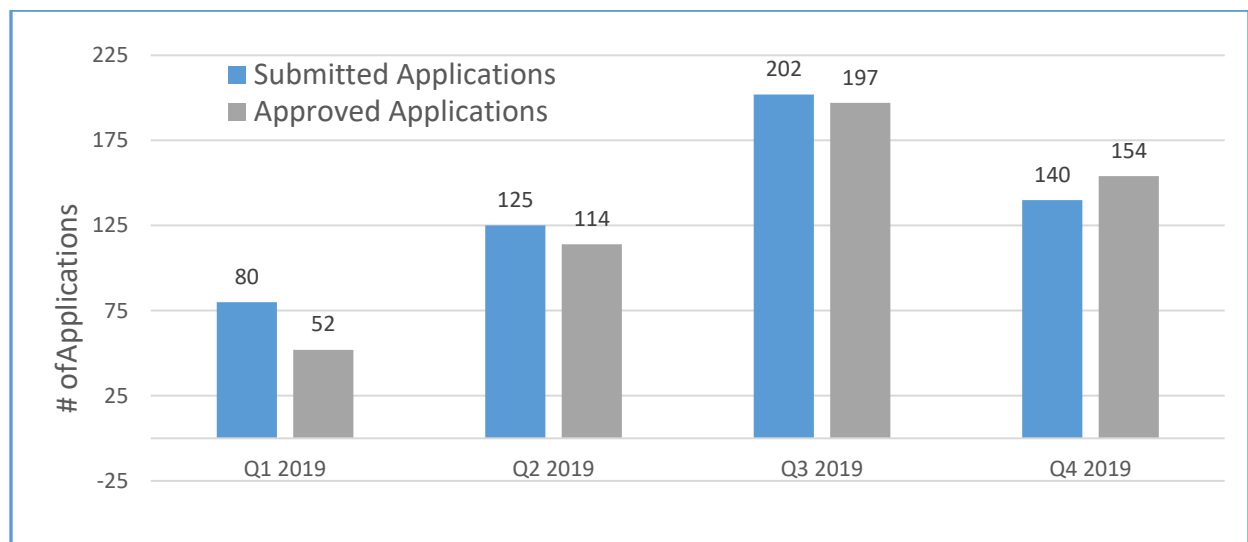
Map 1 below shows the location of all pending or completed DAC-SASH applications through Q4 2019. It also illustrates that GRID has qualified DAC-SASH applicants over a wide range of CalEnviroScreen DACs in the IOU territories. It is important to note that much of the IOU territory that would otherwise be eligible for the program is not considered a DAC. To illustrate,

¹⁰ https://gridalternatives.org/sites/default/files/DAC%20SASH%20MEO%20Plan%202020_Final_12.20.19.pdf

GRID provides a table in Appendix A highlighting the number of DAC-SASH applicants in each DAC census tract, not depicted in the map above due the small size of each tract.

Below Chart 4 shows that GRID processed and approved 517 applications from eligible DAC - SASH clients in 2019. Of these applications, 14 were in SDG&E territory, 251 in PG&E territory, and 149 in SCE's utility territory.

Chart 4: Application Count by Quarter



GRID's marketing and outreach approach for the DAC-SASH program, based on the success of its work administering the SASH program and other low-income solar programs, combines a recognized brand, data-driven targeting, community and institutional partnerships, and experience-based and flexible marketing and outreach activities.

Experience with income-qualifying single-family programs has shown that consistent advocacy and assistance throughout the entire process--and the lifetime of the solar system--is key to ensuring that language, physical ability, age and education level are not barriers to participation and participants can make informed decisions and get the greatest possible benefit from the solar system. In communities often targeted by predatory practices and scams, showing

investment in long-term household and community benefit is a crucial and essential component of the program.

To this end, GRID combines direct, in-community, in-language outreach and education with community and local government partnerships to ensure program information is reaching eligible households through a trusted source. In new markets and regions, development of partnerships with trusted community partners to co-market the program continues to be GRID's primary strategy for developing trust with the community and target audiences.

GRID's educational messages are reinforced by a robust referrals program, local media, and easily accessible digital platforms. Once a client has been approved for participation, they receive dedicated, ongoing support from outreach and construction staff from application to installation and interconnection, including referrals to complementary state and local programs, including the Energy Savings Assistance Program (ESAP), CARE, and FERA. Following installation, GRID provides ongoing education and engagement, system online monitoring, and access to phone support and troubleshooting to clients throughout the expected life of the solar electric system, ensuring maximum impact and long-term program benefit.

Ensuring a positive client experience and long-term investment in the community is key to continued program enrollment and impact, particularly as a significant amount of new program enrollees are due to direct referrals from satisfied participants. To collect client feedback, GRID provides a participation survey after the installation of the PV-system, as well as an annual survey to monitor impact and satisfaction over the long term. Per the reporting requirement for DAC-SASH, GRID includes in Appendix B a summary of participant survey results.

8. Job Training and Workforce Development



Job training is central to GRID's mission and DAC-SASH program delivery model. GRID takes a holistic approach that directly integrates job training opportunities into every project and creates ladders of opportunity for individuals from all backgrounds to access well-paid jobs in California's thriving solar industry. In DAC-SASH, every project is a classroom in the field for local job seekers, many coming

from the same disadvantaged communities the solar program is designed to serve.

Through a combination of the program's job training requirements and GRID's initiatives, the DAC-SASH program is positioned to deliver robust and impactful workforce development outcomes in 2020 and beyond.

8.1 Job Training Requirements in the DAC-SASH program

Projects installed using GRID's volunteer and job trainee-based model must meet one of the five categories described below; projects installed with the Subcontractor Partnership Program (SPP) model must include at least one paid workday opportunity for an eligible job trainee.¹²

1. **Team Leader:** GRID Alternatives' Team Leader Program offers experienced volunteers more comprehensive, in-depth training to further develop their skills and increase employment opportunities in the growing solar jobs market. Team Leaders log a

¹² Additional information on these programs and requirements can be found at: <https://www.gridalternatives.org/programs/workforce-development> and in the DAC SASH Program Handbook.

minimum of 40 hours on GRID Alternatives' installations, complete a suite of six certifications on technical skills, attend a leadership skills workshop, and complete two installations to sign off on skills with a GRID installation supervisor.

2. **SolarCorps Fellow:** SolarCorps opportunities at GRID Alternatives include fellowships in project management, system design, marketing and outreach, communications, job trainee and volunteer management, market development, construction, and fundraising. These are one-year paid fellowships that are based on the AmeriCorps program and are sometimes combined with additional funding from the Corporation for National and Community Service.
3. **Job Training Students (at least 3):** Some of GRID Alternatives' in-house installations are reserved for job training groups of students from job training programs. These are students from community colleges, vocational high schools, or community job training programs that generally have completed a PV-classroom component, but utilize GRID's installation as the hands-on, real world application of the skills they are learning in a classroom.
4. **Installation Basics Training (IBT) Participants (at least 3):** GRID's Installation Basics Training (IBT) program awards trainees with certificates for industry-relevant skills learned and demonstrated in GRID's unique, hands-on training environment under the supervision of our professional solar installation staff. GRID currently offers 11 Skills Certificates that cover a variety of array and electrical skills, such as conduit bending and racking installations. To earn all 11 Skills Certificates, IBTs typically need to dedicate 130-300 hours in the field (8-20 complete installations).
5. **Design & Construction Intern:** Design and construction internships allow job seekers the opportunity to explore a solar career in a real work environment while being coached through skill development. GRID design & construction interns spend at least 6 weeks and up to 4 months gaining solar installation training and experience on GRID's in-house installations. Depending on their focus, interns may support with site visits, system design, or direct installation. Internships include job search support, hard and soft skills development under the instruction and supervision of experienced GRID staff, and individualized goals depending on prior experience and personal objectives.

To align with the industry standards, the below categories are relevant job task analysis categories for job trainees participating in the DAC-SASH program:

- Directly work on solar installation
 - Installing Electrical Components
 - Installing Mechanical Components
 - Completing System Installation
 - Conducting Maintenance and Troubleshooting Activities
- Project Design/Project Engineering
 - Designing Systems
- Project management/coordination

Tables 4 and 5 below highlight job trainee types and hours worked thus far in DAC-SASH program installations, according to the program requirements.

Table 4: Unique Participants in Job Training Programs

	SolarCorps	IBT Trainees	Job Trainees	Intern	Team Leaders	Total Internal	Sub-contractor Program (SPP)
# of unique participants	26	45	186	2	4	263	0

Table 5: Job Training Hours by Volunteer Opportunity or Work Type

Type of work	SolarCorps	IBT Trainees	Job Trainees	Intern	Team Leaders	Total
Directly Worked on Installation (hours)	3,097	1,664	2,840	46	64	7,711
Design/Engineering (hours)	0	0	0	0	0	0
PM/Coordination (hours)	0	0	0	0	0	0
Total Hours	3,097	1,664	2,840	46	64	7,711

8.2 Job Training and Workforce Development Initiatives

In addition to the program's specific project-level job training requirements as outlined above, GRID Alternatives has incorporated additional "green job" training and workforce development components into the DAC-SASH Program with the following initiatives:

Integration of hands-on solar installation experience into low-income job training programs. GRID Alternatives presently partners with 75 California job training organizations¹³ to incorporate GRID's volunteer-based installation projects into their construction training curricula. GRID dedicates approximately 20% of its internal installations for these trainees to gain hands-on experience with real-world solar installations that have conditions and requirements comparable to what they would encounter in private industry

Paid Work and Job Placement Opportunities for Training Program Graduates: Graduates from job training programs will have the opportunity for paid work alongside professional installers on installations with DAC-SASH subcontractors. One of the biggest challenges for "green job" training is providing sufficient job placement opportunities for job trainees, ideally resulting in local hiring. In our experience, job trainees are often competing with environmentally-oriented college graduates looking for a way to enter the solar industry. The job training component of GRID's SPP Program was developed to help "level the playing field" and provide opportunities for local job trainees to enter the solar PV workforce. The installer subcontractors use the installations as an extended interview, committing to hire job trainees if they perform well and the company has open entry-level solar PV installer position.

¹³ Job Training Organizations (JTOs) are included that are considered to be active JTO partners which GRID has worked directly with on SASH installations in last 2 years.



Resume Bank/Job Board: GRID maintains an online Resume Bank/Job Board to promote economic development in disadvantaged communities through job training and local hiring initiatives. This platform is in the process of expansion and adaptation for DAC-SASH to match qualified trainees/job candidates with job opportunities. The Resume Bank/Job Board provides the additional benefit of gathering critical data around hiring. For example, GRID

has found that frequent updates with individuals, JTOs, and contractors who use the resume bank lead to insights about the success rate of individuals seeking full-time employment.

Local Hiring Strategies Aimed at Disadvantaged Workers: GRID aims to ensure that individuals with barriers to employment can participate in the DAC-SASH program and benefit from its workforce development initiative. Based on experience and industry best practices, GRID will work with JTO partners to emphasize the importance of including “soft skills” training - such as computer/digital literacy, resume and interviewing skills, etc. - into its solar curriculum in order to enhance an individual’s overall employability. GRID will ensure that JTOs that work with these populations have their trainees participate in the Resume Bank/Job Board, and can be easily referred to companies that are hiring through the direct connections facilitated by the Resume Bank/Job Board. GRID has partnered with JTOs that work with re-entry populations and at-risk young adults, and has successfully connected trainees to paid job training opportunities in the existing low-income solar rebate programs, and will continue to do in DAC-SASH.

The Installation Basics Training (IBT) program awards trainees with certificates for industry-relevant skills learned under the supervision of GRID’s professional solar installation staff. GRID’s Installation Basics Training (IBT) program provides job trainees’ valuable hands-on

training, support for development of a specific skillset solicited by employers, and access to potential employment opportunities. IBT trainees earn certificates by demonstrating their competency on specific skills while working on installations. GRID currently offers 11 Skills Certificates that cover a variety of array and electrical skills. To earn all 11 Skills Certificates, IBTs typically need to dedicate 130-300 hours in the field (8-20 complete installations).

Employment opportunities for IBT trainees include on-site networking opportunities with corporate sponsors, referrals to companies hiring for installation positions in the solar industry, and

access to GRID's Resume Bank, which connects job seekers and employers. Graduates of the IBT program may advance to Team Leader status to further their technical skills and gain leadership experience.



GRID Team Leader and ongoing hands-on opportunities of job trainees. In addition to reserving entire installations for job training partnerships, GRID gives individual job trainees priority to participate on volunteer installations. Additionally, job trainees can participate in GRID's "Team Leader Program" that provides leadership roles on GRID's volunteer installations. These Team Leader initiatives give job trainees the opportunity to get critical hands-on PV-installation leadership experience required by most PV-solar contractors.

GRID Team Leaders may apply their experience toward NABCEP certification. The North American Board of Certified Energy Practitioners (NABCEP) is widely recognized as the leading certification for solar energy professionals. An individual pursuing NABCEP's PV solar installer certification must meet the Board's minimum requirement of having led 5 PV solar installations in order to sit for the certifying exam. One of the auxiliary benefits for GRID Team Leaders is that

their experience working directly under professional installers while leading other volunteers can be applied toward meeting this NABCEP requirement for certification.

General volunteering opportunities. GRID provides a mandatory orientation that all prospective volunteers must attend, which primarily focuses on safety at the job site, but also allows GRID to promote solar energy and educates volunteers on solar technologies, the importance of energy efficiency, and CA's low-income solar, energy storage, and energy efficiency programs. Individuals who complete the volunteer/solar orientation leave not only with eligibility to work on DAC-SASH installations, but also with heightened knowledge about the solar industry and the DAC-SASH Program that can motivate them to be solar advocates in their own communities.

Finally, GRID has developed a robust system for tracking DAC-SASH job training participants, the hours they work, and specific project location of the work, and has also begun collecting additional information on wages paid, and using trainee addresses listed there to determine local hiring success. Trainees will be surveyed on an annual basis to measure retention, in both the solar industry and overall workforce, as well as career growth. GRID will also survey SPP Program installers on their long term hiring of program trainees, trainee recruitment experience, and trainee quality on a semi-annual basis, as well as receive information from its Job Training Organization partner network. Feedback from trainees, employers, and JTOs will inform revisions to improve the effectiveness of the training, and ensure the DAC-SASH program delivers impactful workforce development outcomes in communities throughout the IOUs and specifically in CES DACs.

9. Coordination with Complementary Programs

GRID seeks to integrate the DAC-SASH program into the full landscape of CA programs that can benefit disadvantaged communities. These include energy efficiency programs, energy assistance programs, and the Self-Generation Incentive Program (SGIP) that can increase the resiliency of low-income households.

9.1 Energy Efficiency & the Energy Savings Assistance Program

Energy efficiency (EE) is an important part of the DAC-SASH program and the overall mission of GRID Alternatives. GRID believes that energy efficiency is the essential first step to implement in clients' homes before installing PV-solar. To this end, GRID conducts an energy efficiency education and training session for every DAC-SASH applicant. GRID has observed that these one-on-one, tailored education sessions can be effective in driving behavioral changes that both reduce energy consumption and increase utility cost savings at the household level.

GRID works with the Energy Savings Assistance Program (ESAP) administrators to enroll eligible homeowners into the program, and with the IOUs to streamline ESAP enrollment for DAC-SASH clients. In Q3-Q4 2019, GRID worked collaboratively with the IOUs to improve data transfer and standardize information GRID receives related to ESAP enrollment. Per the DAC-SASH program structure, all PV-systems are sized based on client usage and in consideration of presumed energy savings from ESAP.

Table 6: ESAP Referrals and Enrollment

	Total Referred	Enrolled	% Enrolled
PG&E	314	141	45%
SCE	173	80	46%
SDG&E	9	1	11%
Total	496	222	45%

Table 6 above summarizes the number of DAC-SASH participants that have been referred to the IOUs for enrollment into the ESAP through Q4 2019, and have successfully enrolled in ESAP.¹⁴

In addition to ESAP referrals and enrollment, GRID will explore strategic partnerships with the IOUs and other state programs that provide additional efficiency services to qualified homeowners, such as the Weatherization Assistance Program¹⁵ and the Low-Income Weatherization Program (LIWP).

9.2 CA Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) programs

GRID will also coordinate with California IOUs, the administrators of the CARE and FERA programs, to increase enrollment in these energy assistance programs and further increase benefits for DAC-SASH participants.

Table 7: CARE/FERA Enrollment

	Total Applications	CARE Enrolled	FERA Enrolled	Total Enrolled	% Enrolled
PG&E	307	247	5	252	82%
SCE	222	159	2	161	73%
SDG&E	18	12	-	12	67%
Total	547	418	7	425	78%

Though all qualifying-DAC-SASH households are eligible for CARE and/or FERA, many households are unaware of the benefits and accessibility of these programs. GRID's outreach

¹⁴ GRID refers all ESAP-eligible DAC-SASH applicants to the IOU ESAP programs; some DAC-SASH participants may not be ESAP-eligible if they have already completed services in the program, or have an energy efficient home built in the last five years.

¹⁵ <https://www.benefits.gov/benefit/1844>

staff provides information about CARE and FERA to all DAC-SASH participants and refer DAC-SASH participants to the IOUs.

9.3 The Self-Generation Incentive Program (SGIP)

In Q4 2019, Decision 19-09-027 in the Self-Generation Incentive Program (SGIP) that provides incentives for energy storage, among other technologies, allows for households that qualify for DAC-SASH to also be qualified for the SGIP's Equity and Resiliency budget. GRID is currently working with the SGIP Program Administrators (PAs) and the Energy Division to develop a streamlined SGIP enrollment processes for DAC-SASH participants, as well as explore co-marketing between the two programs. GRID is also working with its primary TPO partner, Sunrun, and its equipment procurement and philanthropy team, to explore integrating battery storage into its PV-model and ensuring the storage systems can be delivered to the households at no cost, and that long-term warranty coverage and battery replacement is included. GRID anticipates initiating a pilot in 2020 to begin development of a DAC SASH PV + storage pairing for highest-need resiliency clients.

10. Subcontractors and Staffing

Similar to the administration of the SASH program, GRID utilizes staff throughout its Headquarters office and staff in its CA Affiliate offices to conduct administration, marketing, outreach, and installation services under the DAC-SASH program. Many services are centralized, such as equipment procurement, project-level invoicing, and orchestration of field inspections. Other services are conducted at the regional office level, such as development of local partnerships and targeted marketing and outreach strategies.

Subcontractors

a) Field Inspections

Like the SASH program, the DAC-SASH program requires that at least one in every 12 installations are inspected for proper installation and operability by an independent third-party system inspector. GRID currently subcontracts with Indaspec, the Institute for Building Technology and Safety (IBTS), and the Center for Sustainable Energy (CSE) to conduct on-site field inspections throughout the IOU territories for the DAC-SASH program.

b) Subcontractor Partnership Program (SPP)

GRID's [Subcontractor Partnership Program \(SPP\)](#) was launched statewide under the SASH program and is a proven model for engaging local installers as subcontractors while providing paid work opportunities for job trainees. Under the SPP, GRID subcontracts with fully-vetted, for-profit companies to install a portion of the DAC-SASH program PV systems, based on a reduced-cost structure and modified scope of work to match the structure of GRID's model. GRID's outreach staff continue to oversee all client-facing interactions and contracting, and the subcontractors provide limited design and/or installation services. All SPP projects are inspected by a third-party, independent inspector for Quality Assurance (QA). The QA inspection will verify that the system was installed using industry-standard best practices, and meets all of GRID's installation quality requirements. In addition, subcontractors will be required to hire at least one paid trainee onto each of their DAC-SASH SPP projects.

c) Public Reporting

GRID subcontracts with Energy Solutions to develop and maintain DAC-SASH data on the California Distributed Generation public reporting site, [CalDGStats](#). Initial DAC-SASH data was made live on their website on January 31, 2020.

11. Program Assessment, Barriers, and Planned Modifications

11.1 PA's Assessment of Program Performance

Overall, GRID is pleased with the design and implementation of the DAC-SASH program statewide thus far. The primary program guiding elements, including a Program Handbook, Program Implementation Plan, and Marketing, Education and Outreach Plan for Year 1, have all been approved and are in operation. GRID worked collaboratively with the Energy Division and SCE to develop new invoicing, budgeting, and reporting processes for the program, including a monthly narrative report of administrative activities. GRID has ramped up outreach and marketing efforts statewide, and the program's core messages have been well-received by the target audiences. GRID plans to continue focusing on posting strong workforce development outcomes and creating an impactful program with valuable co-benefits in communities. GRID is concerned about some of the barriers to program participation, detailed in the subsequent section, being a roadblock to program success. GRID looks forward to working with stakeholders and the Energy Division to address these barriers and continue to improve the program in 2020.

11.2 Barriers to Participation

As has been detailed in numerous reports and programs, including the Low-Income Barriers report,¹⁶ low-income households face myriad barriers to both accessing solar on their own and participating in statewide and local solar programs, including financial barriers, structural barriers, and marketing and outreach barriers. GRID's holistic, community- and customer-centric approach addresses many of these barriers using strategies that have proven to be successful in

¹⁶ Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities, California Energy Commission, December 2016. Available at https://www2.energy.ca.gov/sb350/barriers_report/

working with low-income households. For example, GRID's support can enable low-income families to overcome the financial barrier to solar access by covering the cost of the system. However, there are limitations to GRID's resources and GRID may be unable to apply gap financing to all systems, as detailed below in Section ii. Gap Financing Requirements. In addition, there are barriers to DAC-SASH participation that are due to the program eligibility, and that cannot be overcome with program design elements.

GRID provides a high-level overview of its assessment of program barriers:



11.2.1 Eligibility requirements for geography and income

The DAC-SASH program requires that properties are located in the CalEnviroScreen (CES) DACs on a statewide basis; and, that households meet the definition of low-income that is based on the CARE/FERA statewide eligibility. Both of these requirements can be constricting and

jeopardize program success, as is evident through a case study of the SDG&E service territory, detailed below.

The exclusive use of the CES to set the parameters for DACs has created challenges for client recruitment in SDG&E's service territory due to the size of the potential market. In SDG&E, only 37 census tracts are in the CES compared to 356 census tracts in PG&E and 655 census tracts in SCE.¹⁷ The 37 census tracts in SDG&E that meet the CES qualification represent less than five percent of all of SDG&E's territory. Within those 37 census tracts, the rate of homeownership is lower than in other census tracts, further limiting market potential. GRID estimates there are

¹⁷ Statewide in CA there are 8,040 census tracts; and 2,007 that are DACs in the CES. There are 1,048 tracts that are entirely in the IOUs and a CES DEC. <https://oehha.ca.gov/calenviroscreen/maps-data>.

< 3,000 low-income homes in SDG&E that meet the geographic eligibility for DAC-SASH,¹⁸ however, GRID expects that at least half of these will not be eligible because they will not be owner-occupied, or may not be solar-suitable due to shading, or have a need for structural improvements such as a roof repair/replacement.¹⁹

In addition to these pronounced geographic limitations in SDG&E, the income qualification of a single statewide income level further limits participation in an area such as San Diego, which has a higher cost-of-living than many areas around the state. To illustrate, nearly 50 percent of the SDG&E households who participated in SASH²⁰ -- which uses an Area Median Income to take into account the widely varied cost-of-living around the state -- would not meet the income requirement for DAC-SASH. Notably, other areas of the state such as the Bay Area and Los Angeles regional markets experience a similar or higher rate of disqualifications using a statewide CARE/FERA income benchmark.

After accounting for these factors and conducting additional market assessments based on this data and our experience with program adoption rates, GRID has determined that there are not sufficient homeowners who meet the definition of low-income and reside in the CES in SDG&E with solar-suitable homes to use the allotted incentive funds.

The geographic and income program requirements are a barrier to participation in many other parts of the IOU territories. For example, currently no CA tribes in the IOUs meet the geography

¹⁸ Considers 200% Federal Poverty Limit or lower, 1 unit detached and 1 unit attached owner-occupied units. <https://www.energy.gov/eere/slsc/maps/lead-tool>.

¹⁹ GRID's database indicates that for clients with an accepted SASH application from 2016-2018, on average 35% do not continue with an installation, typically due to the home not being solar suitable. In the Los Angeles region, the percentage is nearly 65%. GRID expects similar results in DAC-SASH.

²⁰ SASH uses 80% or less of Area Median Income (AMI) to meet the low-income threshold, which is set in PU Code 2852(a)(1) and detailed in Chapter 2 (commencing with Section 50050) of Part 1 of Division 31 of the Health and Safety Code.

requirement, and very few homeowners in high cost-of-living areas including San Francisco and Los Angeles will qualify using a statewide CARE/FERA income limit.

11.2.2 Gap financing requirements

Gap financing is the difference between the project cost and the available DAC-SASH incentive. The financial benefit from the DAC-SASH Third-Party Ownership (TPO) arrangement that GRID expects to leverage for the majority of DAC-SASH projects will help cover some financing gaps, but many DAC-SASH projects cannot leverage the TPO model,²¹ and others may be a higher cost due to additional expenses such as an electrical service upgrade, a smaller system, or a ground mount. In these cases, securing additional gap financing is critical to serving target households, as low-income participants are not expected to contribute financially to their installation. GRID is able to leverage additional gap financing through local grants, foundation support, in-kind donations, and philanthropic resources; but, does not have access to the amount of gap financing required by all projects to make them feasible for all qualifying low-income homeowners across the state. As such, limitations on GRID's gap funding availability is a barrier to DAC-SASH program participation.

11.2.3 Additional structural costs such as roof replacement

Much of the older housing stock that qualifies for the DAC-SASH program requires additional structural upgrades, such as roof repair or replacement, or other property rehabilitation measures related to unpermitted structures, or outdated electrical systems throughout the home (beyond a main service panel upgrade). While GRID has developed some innovative programs and partnerships to provide roof repair and replacements for low-income families, these resources are limited and have been very place-specific. For example, GRID has partnerships with the Cities of San Francisco and Richmond to provide funding for roof

²¹ ~25% of GRID's projects cannot leverage the TPO model because of system size being too small to meet the TPO provider's requirements, the equipment that may be donated or available to use does not meet the TPO provider's requirements, there are deed and land ownership documentation that does not meet the TPO provider's requirements, (such as all tribal reservation lands), and/or the project funder, partner, city, or client is unable or unwilling to approve a TPO ownership structure

repair/replacement, and has a philanthropic fund devoted to re-roofing for qualifying veterans in Los Angeles. However, the need for roof repair/replacement and other structural upgrades outpaces the supply of resources to accommodate these costs. As such, homeowners with these additional structural costs face barriers to DAC-SASH program participation as most low-income families are unable to self-finance such expenses.

11.3 Program Design Improvement and Planned Changes

As detailed in Section i. Eligibility requirements for geography and income, above, the program's eligibility for geography and income are narrow and jeopardize the success of the program. GRID plans to work collaboratively with stakeholders and the Energy Division to explore program changes to address these limitations in 2020 via a modification of D. 18-06-027.

Appendices



Appendix A

Applications in each CalEnviroScreen Disadvantaged Community (DAC) Census Tract

Project County	DAC Census Tract	# of DAC-SASH apps
Alameda	6001401500	1
Alameda	6001408800	1
Alameda	6001409400	1
Butte	6007001300	1
Contra Costa	6013309000	1
Contra Costa	6013310000	2
Contra Costa	6013311000	4
Contra Costa	6013312000	1
Contra Costa	6013313101	2
Contra Costa	6013314103	3
Contra Costa	6013314104	2
Contra Costa	6013358000	2
Contra Costa	6013364002	1
Contra Costa	6013365002	2
Contra Costa	6013368001	2
Contra Costa	6013375000	2
Contra Costa	6013376000	2
Contra Costa	6013377000	44
Contra Costa	6013379000	2
Contra Costa	6013380000	3
Contra Costa	6013381000	3
Contra Costa	6013382000	2
Contra Costa	6013392200	1
Fresno	6019000700	2
Fresno	6019000901	4
Fresno	6019000902	1
Fresno	6019001000	2
Fresno	6019001413	1
Fresno	6019002501	1
Kings	6031000500	2
Kings	6031001002	1

Kings	6031001003	3
Los Angeles	6037402200	1
Los Angeles	6037402402	1
Los Angeles	6037402706	1
Los Angeles	6037402904	1
Los Angeles	6037404901	1
Los Angeles	6037405002	1
Los Angeles	6037433503	1
Los Angeles	6037502700	1
Los Angeles	6037503000	1
Los Angeles	6037503105	1
Los Angeles	6037530901	1
Los Angeles	6037540102	1
Los Angeles	6037542103	1
Los Angeles	6037542700	1
Los Angeles	6037543201	1
Los Angeles	6037543322	2
Los Angeles	6037543604	1
Los Angeles	6037543801	1
Los Angeles	6037543802	1
Los Angeles	6037550100	1
Los Angeles	6037553504	1
Los Angeles	6037553602	1
Los Angeles	6037553701	2
Los Angeles	6037570204	1
Los Angeles	6037600502	1
Los Angeles	6037601402	1
Merced	6047000301	1
Merced	6047001401	1
Merced	6047002000	7
Merced	6047002201	1
Merced	6047002202	12
Merced	6047002302	5
Monterey	6053000900	1
Riverside	6065040607	1
Riverside	6065042007	1

Riverside	6065042300	1
Riverside	6065042506	1
Riverside	6065042513	2
Riverside	6065042514	1
Riverside	6065042521	1
Riverside	6065042620	5
Riverside	6065042624	1
Riverside	6065042706	2
Riverside	6065042901	1
Riverside	6065043005	1
Riverside	6065046200	1
Riverside	6065048800	1
San Bernardino	6071000303	2
San Bernardino	6071000403	1
San Bernardino	6071000904	1
San Bernardino	6071001001	1
San Bernardino	6071001103	1
San Bernardino	6071001804	1
San Bernardino	6071002105	1
San Bernardino	6071002107	1
San Bernardino	6071002301	1
San Bernardino	6071002502	1
San Bernardino	6071002606	1
San Bernardino	6071002704	1
San Bernardino	6071002902	1
San Bernardino	6071003401	1
San Bernardino	6071003503	4
San Bernardino	6071003506	1
San Bernardino	6071003607	3
San Bernardino	6071003609	1
San Bernardino	6071003803	1
San Bernardino	6071003804	2
San Bernardino	6071003900	1
San Bernardino	6071004103	2
San Bernardino	6071004104	1
San Bernardino	6071004201	1

San Bernardino	6071004202	1
San Bernardino	6071004302	2
San Bernardino	6071004403	1
San Bernardino	6071004601	2
San Bernardino	6071004603	2
San Bernardino	6071004604	1
San Bernardino	6071004700	1
San Bernardino	6071004900	1
San Bernardino	6071005200	1
San Bernardino	6071005300	2
Riverside	6071005600	2
San Bernardino	6071006100	3
San Bernardino	6071006201	2
San Bernardino	6071006301	1
San Bernardino	6071006604	1
San Bernardino	6071007110	2
San Bernardino	6071007200	1
San Bernardino	6071007407	1
San Bernardino	6071007601	1
San Bernardino	6071007603	1
San Bernardino	6071007604	2
San Bernardino	6071012700	1
San Diego	6073002502	1
San Diego	6073003301	1
San Diego	6073003305	1
San Diego	6073003403	1
San Diego	6073003404	1
San Diego	6073003501	1
San Diego	6073004100	1
San Diego	6073004800	1
San Diego	6073004900	5
San Diego	6073011700	1
San Francisco	6075023200	4
San Joaquin	6077000801	2
San Joaquin	6077001300	1
San Joaquin	6077001400	1

San Joaquin	6077001600	1
San Joaquin	6077001700	1
San Joaquin	6077001900	1
San Joaquin	6077002300	1
San Joaquin	6077002402	1
San Joaquin	6077002800	2
San Joaquin	6077003403	3
San Joaquin	6077003407	2
San Joaquin	6077003409	2
San Joaquin	6077003500	39
San Joaquin	6077003700	5
San Joaquin	6077003801	15
San Joaquin	6077003802	7
San Joaquin	6077005106	2
San Joaquin	6077005110	2
San Joaquin	6077005114	2
San Joaquin	6077005119	12
San Joaquin	6077005127	7
San Joaquin	6077005133	3
San Joaquin	6077005135	2
San Joaquin	6077005206	2
San Joaquin	6077005305	1
San Mateo	6081611900	1
San Mateo	6081612000	1
Santa Clara	6085512602	1
Santa Cruz	6087110400	1
Solano	6095251802	1
Stanislaus	6099000202	1
Tulare	6107000900	4
Tulare	6107001003	7
Tulare	6107001004	3
Tulare	6107001302	1
Tulare	6107001602	1
Tulare	6107002800	1
Tulare	6107003200	1
Tulare	6107003400	1

Tulare	6107003700	2
Tulare	6107003901	4
Tulare	6107003902	1
Tulare	6107004101	7
Yolo	6113010203	1
Yuba	6115040400	1

Appendix B

Summary of Program Participant Survey Results

GRID has in place a post-installation survey that goes out after all construction is complete. It includes four important questions and has room for comments or other feedback. To date there are 15 survey responses from DAC-SASH participants, hailing from the Central Valley, Central Coast, and Bay Area regions. All responding participants stated that they would be highly likely to recommend GRID to their contacts or neighbors.

The list of formal survey questions, emailed to clients include:

- Do you understand how the system works?
- How to tell if the system working?
- What to do if the system is not working?
- Do you understand your NEM bills?

To date GRID has received no complaints via the post-installation survey. GRID is working in Q1 to create a formal complaint system that should be in place and operational by Q2 2020.