



PUBLIC UTILITIES COMMISSION

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TO PARTIES OF RECORD IN RULEMAKING 12-11-005:

This is the proposed decision of Commissioner Rechtschaffen. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's September 12, 2019, Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

/s/ JEANNE McKINNEY for
Anne E. Simon
Chief Administrative Law Judge

AES:jt2

Attachment

Decision PROPOSED DECISION OF COMMISSIONER RECHTSCHAFFEN
(Mailed 8/9/2019)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding
Policies, Procedures and Rules for the
California Solar Initiative, the
Self-Generation Incentive Program and
Other Distributed Generation Issues.

Rulemaking 12-11-005

**DECISION ESTABLISHING A SELF-GENERATION INCENTIVE PROGRAM
EQUITY RESILIENCY BUDGET, MODIFYING EXISTING EQUITY BUDGET
INCENTIVES, APPROVING CARRY-OVER OF ACCUMULATED UNSPENT
FUNDS, AND APPROVING \$10 MILLION TO SUPPORT THE SAN JOAQUIN
VALLEY DISADVANTAGED COMMUNITY PILOT PROJECTS**

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DECISION ESTABLISHING A SELF-GENERATION INCENTIVE PROGRAM EQUITY RESILIENCY BUDGET, MODIFYING EXISTING EQUITY BUDGET INCENTIVES, APPROVING CARRY-OVER OF ACCUMULATED UNSPENT FUNDS, AND APPROVING \$10 MILLION TO SUPPORT THE SAN JOAQUIN VALLEY DISADVANTAGED COMMUNITY PILOT PROJECTS

Summary

Because there have been no subscriptions in the Self Generation Incentive Program (SGIP) equity budget since the Commission established this set-aside in 2017, this decision modifies equity budget program requirements and incentive levels to increase participation. To help deal with critical needs resulting from wildfire risks in the state, it establishes a new equity resiliency budget set-aside for vulnerable households located in Tier 3 high fire threat districts, critical services facilities serving those districts, and customers located in those districts that participate in two low-income solar generation programs. It also establishes a \$10 million budget for SGIP storage incentives to support pilot projects in eleven San Joaquin Valley disadvantaged communities, addressed in Decision 18-12-015 in Rulemaking 15-03-010, and a \$4 million equity budget set-aside for heat pump water heater (HPWH) incentives.

This decision directs Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company and the Center for Sustainable Energy (collectively program administrators or PAs) to carry over SGIP funds accumulated prior to or during 2017 - 2019 for use through 2025. It directs the SGIP PAs to transfer \$100 million of accumulated generation technology funds to the new equity resiliency budget and \$4 million in accumulated non-residential storage funds to the equity HPWH budget. It directs PG&E and SCE to transfer \$10 million in accumulated non-residential equity budget funds to the San Joaquin Valley pilot budget.

In a subsequent decision in this proceeding, we will implement annual ratepayer collections for the SGIP for five years (2020 – 2024), as provided for in Senate Bill 700, and will consider collecting up to \$100 million annually to expand the equity resiliency budget established in this decision.

1. Background

Senate Bill (SB) 700 (Wiener, 2018)¹ authorizes the California Public Utilities Commission (Commission) to extend annual collections for the Self-Generation Incentive Program (SGIP) for five additional years, from December 31, 2019 to December 31, 2024, extends administration of the program for five additional years, from January 1, 2021 to January 1, 2026, and directs the Commission to provide repayment to ratepayers of any unallocated funds remaining as of January 1, 2026. The SGIP program provides incentives for on-site distributed energy resources including renewable generation and storage technologies. Decision (D.) 19-08-001 addressed another provision of SB 700 requiring that SGIP projects reduce greenhouse gas (GHG) emissions.

An April 15, 2019 Assigned Commissioner’s Ruling in Rulemaking (R). 12-11-005 (SGIP ACR) requested party feedback on questions to guide implementation of SB 700 and to consider other program modifications.² The SGIP ACR solicited party input on the future direction of the SGIP program in a wide range of areas.³ In this decision we: (1) modify equity budget program

¹ Stats. 2019, Ch. 839 (Wiener).

² *Assigned Commissioner’s Ruling Seeking Comment on Implementation of Senate Bill 700 and Other Program Modifications*, April 15, 2019.

³ The SGIP ACR at 1 requested party feedback on overall SGIP collection levels for years 2020-2024, funding allocations among technology and customer sectors, incentive levels, equity budget program and incentive design, incentive step-down structure, administrative budget,

Footnote continued on next page

requirements and incentive levels to increase participation; (2) establish a new \$100 million equity resiliency budget set-aside for vulnerable households in Tier 3 high fire threat districts (HFTDs), critical services facilities serving those districts, and customers located in those districts that participate in two low-income solar generation programs; and, (3) establish a \$10 million budget for SGIP storage incentives to support pilot projects in eleven San Joaquin Valley (SJV) disadvantaged communities (DACs) authorized in D.18-12-015.⁴ These communities are Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, West Goshen, and California City. We also (4), establish a new equity heat pump water heater (HPWH) set-aside of \$4 million.

We discuss and approve modifications to the equity budget program and incentive first, then approve the equity and equity resiliency budgets, and finally turn to issues related to the SJV DAC pilot projects and HPWHs.

2. Jurisdiction

Public Utilities Code Section 379.6 established the SGIP program in 2001 to increase deployment of distributed generation and energy storage systems to facilitate the integration of those resources into the electrical grid, improve efficiency and reliability of the distribution and transmission system, and reduce emissions of greenhouse gases, peak demand, and ratepayer costs.⁵

Section 379.6(a)(1) requires the Commission to ensure an equitable distribution of the costs and benefits of the program. Section 379.6(b)(3) requires the

resiliency, SGIP modifications to support the San Joaquin Valley pilot projects, and, thermal energy storage and coordination with the new building de-carbonization rulemaking.

⁴ D.18-12-015 in R.15-03-010.

⁵ Unless otherwise indicated, all references to code in this decision are to the Public Utilities Code.

Commission to adopt requirements for energy storage systems to ensure that eligible systems reduce GHG emissions.

3. Equity Budget

The Commission's goals for the SGIP equity budget are to ensure that a significant portion of the SGIP budget is reserved for customer projects in disadvantaged and low-income communities and that equity budget investments:

1. Bring positive economic and workforce development opportunities to the state's most disadvantaged communities;
2. Help reduce or avoid the need to operate conventional gas facilities in these communities, which are exposed to some of the poorest air quality in the state; and,
3. Ensure that low-income customers and non-profit or public sector organizations in disadvantaged or low-income communities have access to energy storage resources incentivized through SGIP.⁶

The Commission in D.17-10-004 set-aside 25 percent of non-residential and residential SGIP funds to subsidize customer owned energy storage for such projects. D.17-10-004 approved initial incentives of thirty-five cents per watt hour (\$0.35/Wh) and provided a mechanism to increase the equity budget incentive level if it proved too low to attract demand. The increase – \$0.05/Wh – would go into effect after any rolling three-month period in which the equity budget confirmed zero incentive reservations and the general budget confirmed at least five reservations. D.17-10-004 capped equity budget incentives at \$0.50/Wh.

⁶ D.17-10-004, Finding of Fact 1 and 2 at 28.

Three of the four SGIP program administrators (PAs), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas) and the Center for Sustainable Energy (CSE), opened their equity budgets in January, March and June 2018 respectively. The fourth PA, Pacific Gas and Electric Company (PG&E), has not yet opened its equity budget because D.17-10-004 linked opening of each PA's equity budget to opening of the third incentive step of the same PA's general storage budget.⁷ As of April 15, 2019, no developer had sought and the PAs had not approved any equity budget project incentives, despite the fact that SoCalGas had reached the maximum equity budget incentive level (\$0.50/Wh), and SCE and CSE equity budget incentives were at \$0.45/Wh.

The SGIP ACR sought party comments on the reasons for the lack of participation in the equity storage budget and requested input on how to increase participation. On May 30, 2019, 18 parties filed comments including San Jose Clean Energy Authority, Sonoma Clean Power Authority, Peninsula Clean Energy Authority and Silicon Valley Clean Energy Authority, (collectively, Joint CCAs), California Solar and Storage Association (CALSSA), the CSE, the California Clean Distributed Generation Coalition (CCDC), GRID Alternatives and California Housing Partnership Corporation (GRID/CHPC), SCE, California Energy Storage Alliance (CESA), Sunrun Inc. (Sunrun), Sierra Club and Natural Resources Defense Council (SC/NRDC), Pacific Gas and Electric Company (PG&E), SoCalGas, the California Public Advocates' Office (Cal Advocates), and the National Fuel Cell Research Center (NFCRC), Bloom Energy, Doosan Fuel

⁷ SGIP incentives decline as funding in each PA step is depleted. Current SGIP incentive steps can be found in the SGIP handbook and at https://www.selfgenca.com/home/program_metrics/.

Cell America (Doosan) and FuelCell Energy (collectively Joint Fuel Cell Parties). On July 12, 2019, SC/NRDC, the CCDC, PG&E, CSE, San Diego Gas & Electric Company (SDG&E), Tesla, GRID, SCE, CESA, CALSSA, A.O. Smith, SoCalGas, Sunrun and the Joint Fuel Cell Parties filed reply comments. Marin Clean Energy filed reply comments on June 14, 2019.

As of April 15, 2019, the equity budget had a total of \$72 million in funding approved for the 2017 through 2020 period – \$65.4 million in non-residential equity budget funds and \$7.3 million in residential equity budget funds.

3.1. Issues Before the Commission

A June 9, 2017 Scoping Memo in R.12-11-005 included all issues related to the ongoing review, evaluation, and consideration of modifications to SGIP in scope, including “any program revisions that may improve the SGIP that are not required by statute,” which was restated in the SGIP ACR.⁸

This decision restructures the equity budget to improve the likelihood of program participation and considers the role of SGIP equity budget incentives in improving customer resiliency in the face of outages caused by wildfires or Public Safety Power Shutoff (PSPS) events. Specifically, this decision considers the following issues regarding the SGIP equity budget as outlined in the SGIP ACR:

Equity Budget

1. What were the main drivers for the lack of participation in the storage equity budget in 2018?

⁸ Assigned Commissioner’s Second Amended Ruling and Scoping Memo, June 9, 2017 at 6-7. The Assigned Commissioner’s Ruling Amending Scope and Schedule on Proposed Changes to the Self-Generation Incentive Program and Extending Statutory Period, issued on July 26, 2018, did not amend this scope. SGIP ACR at 1.

2. What program changes should the Commission consider in order to increase subscriptions in the storage equity budget?
3. Should the Commission direct PG&E to open step three of its storage equity budget prior to opening step three of its general storage budget?
4. Should the Commission expand eligibility for the storage equity budget to all projects located on tribal lands?
5. Should the Commission modify the storage equity budget set-aside for funds collected in 2020-2024?
6. Should the equity budget incentive structure be modified?
7. Should equity budget developer cap requirements be modified?

Equity Budget and Resiliency Benefits

8. Should the Commission seek to promote SGIP projects that provide resiliency benefits to customers and/or communities facing risks of a wildfire, wildfire related PSPS events, or other adverse event?
9. Should the Commission adopt a dedicated incentive aimed at promoting SGIP technologies with resiliency benefits? Should the Commission adopt a resiliency incentive adder to existing incentives for storage projects?
10. Should the Commission modify the existing SGIP incentive structure to facilitate storage projects with a discharge duration exceeding two hours?
11. Does the use of storage during PSPS events introduce public safety risks, such as creating an alternative source of ignition for a wildfire?

Disposition of Accumulated Unspent Funds from 2017-2019

12. Should the Commission authorize SGIP PAs to carry over accumulated SGIP funds at the end of 2019 for use in subsequent years?

4. Equity Budget Eligibility Criteria

This section reviews existing equity budget eligibility criteria and modifies them with the aim of accelerating program participation. It modifies eligibility verification requirements to streamline SGIP participation among equity budget customers that are also participating in one of two low-income solar programs, expands the definition of disadvantaged communities for SGIP purposes adopted in D.17-10-004 to include California Indian Lands, defines customers with critical resiliency needs for SGIP purposes, and makes additional minor modifications to eligibility criteria for non-residential buildings.

The Commission adopted the following equity budget eligibility criteria in D.17-10-004:⁹

Table 1: Equity Budget Eligibility Criteria

1.	Located in DAC or low-income community;	DAC defined as any census tract that ranks in the top 25 percent most affected census tracts in the most recently release version of CalEnviroScreen. ¹⁰	Low-income community defined as: (1) census tracts with median household incomes at or below 80 percent of the statewide median income; or (2) with median household incomes at or below the threshold designated as low-income pursuant to Section 50093.
	<u>And</u> , meets one of the	Local government agency	Any entity described by Public Contracts Code Section 22161(f).

⁹ D.17-10-004 at 10-17.

¹⁰ The California Communities Environmental Health Screening Tool (CalEnviroScreen) identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution. The tool is managed by the Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA) and may be accessed here: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>.

	following customer criteria:	State government agency	Any entity described by Government Code Section 11000.
		Educational institution	Any institution that would otherwise be eligible for funding through the California Clean Energy Jobs Act (Proposition 39), or a college or university accredited to operate in California.
		Non-profit organization	An organization registered and in good standing with the California Secretary of State as a domestic non-profit.
		Small business	A business or manufacturer, including affiliates, with an average annual gross receipts of \$15 million or less, over the last three tax years.
2.	<u>Or</u> , low-income residential customers living in IOU service territory, regardless of where located.	Multifamily residential, deed-restricted building;	Defined as a multifamily residential building with at least five rental housing units that provides deed-restricted that is either: (1) in a DAC; or, (2) is a building where at least 80 percent of the households have incomes at or below 60 percent of the area median income, or housing.
		<u>Or</u> , a single-family home subject to resale restrictions.	Resale restrictions defined as those set forth in Section 2852(a)(3)(C).

The SGIP ACR requested parties’ comments on topics relating to eligibility criteria in a number of areas, including whether the Commission should expand eligibility for the storage equity budget to all projects located on tribal

reservations. This section discuss this topic first, using the term “Indian Country,” as defined in federal statute.¹¹

4.1. Indian Country in California

As observed in the SGIP ACR, most if not all of Indian Country in California is not currently eligible for equity budget incentives because such communities do not qualify as “disadvantaged communities” identified by CalEnviroScreen, pursuant to Health and Safety Code section 39711 and D.17-10-004. The primary reason for this is that most of the lands defined as Indian Country are located in remote areas with low levels of industrial pollution and vehicle emissions. However, because of their remoteness, these lands frequently experience poor electric service reliability. They have also suffered from historic neglect. To address these problems, the SGIP ACR asked if the Commission should expand eligibility for the storage equity budget to include all projects located in California Indian Country. There are currently no specific eligibility requirements tailored to support tribal participation in the SGIP.

4.1.1. Party Comments

SCE recommends that Commission consult internally with the Commission’s Tribal Liaison to identify the best way to support eligibility of Indian Country for equity budget funds. SDG&E suggests revising eligibility

¹¹ 18 USC 1151: Except as otherwise provided in sections 1154 and 1156 of this title, the term “Indian Country,” as used in this chapter, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

criteria to include tribal communities. CALSSA and several other parties support allowing California tribal access to equity budget funds.

4.1.2. Discussion

We supplement the eligibility criteria adopted in D.17-10-004 to define all California Indian Country as DACs for purposes of the SGIP equity budget. Privately owned non-Indian in-holdings located within the exterior boundaries of a tribe's Indian Country shall not be eligible for equity budget incentives, however, except as provided below. Equity budget eligibility for homes and certain non-residential customers located within California Indian Country supports statutory and Commission goals of ensuring broad access to SGIP funds for low-income and DACs as well as the Commission's Tribal Consultation Policy.

However, it is inappropriate for the definition to include non-Indian residences or businesses located on privately owned fee lands within the bounds of California Indian County, as the occupants or owners of such lands typically are not members of the tribe with jurisdiction over the Indian County and may not be disadvantaged per se. For purposes of the SGIP equity budget, a privately held in-holding is defined as non-Indian owned fee land located within the exterior boundaries of California Indian County, regardless of the use of the land. In the event of multiple owners, the land shall be considered Indian owned if at least one owner is a tribe or tribal member.

We direct the SGIP PAs to file a Tier 2 advice letter within 90 days of issuance of this decision proposing modifications to the Self-Generation Incentive Program handbook to implement this and all other modifications to the SGIP adopted in this decision.

4.2. Non-Residential Customers

D.17-10-004 adopted equity budget eligibility criteria for non-residential customers, summarized in Table 1. The SGIP ACR asked if parties whether equity budget program requirements for non-residential customers should be modified to increase participation.

4.2.1. Party Comments

CALSSA proposes two program modifications to increase participation in the equity budget by non-residential customers. First, CALSSA recommends that the Commission allow public agencies to access the equity budget for a portfolio of projects if: (a) most of the facilities in the portfolio are located in a DAC census tract; or, (b) the public agency serves DAC census tracts and at least 20 percent of census tracts it serves are DACs as defined for the SGIP. CALSSA states that these modifications would increase school district and local government access to equity budget funds and would make equity budget incentives more accessible to agencies that work in or provide support to multiple census tracts. CALSSA contends that DAC residents would benefit from these changes even if not all of the projects are located in a DAC.

4.2.2. Discussion

We expand the definition of eligible non-residential customers to include any facility owned or operated by a public agency that provides services to DAC community members for which at least 50 percent of census tracts served are DACs. The applicant has the burden of providing the information to demonstrate the facility's eligibility. We do not adopt CALSSA's first recommendation as this would be too administratively burdensome for PAs to verify.

These changes will increase participation in the SGIP equity budget but ensure that most of the benefits from these incentives continue to flow to DACs, defined in this decision as including Indian Country customers.

4.3. Participants in Low-Income Solar Programs

Current eligibility requirements to access equity budget incentives and incentives for low-income solar programs such as the Single Family Affordable Solar Homes program (SASH), the SASH for Disadvantaged Communities program (DAC-SASH), and the Solar on Multifamily Affordable Housing program (SOMAH) are similar, but not fully aligned. This decision waives verification of eligibility for the equity budget for any customer approved for participation in the SOMAH, SASH and DAC-SASH programs.

4.3.1. Party Comments

Several parties including GRID/CHPC and Sunrun recommend broadening equity budget eligibility criteria to allow customers qualifying for the SOMAH, SASH and DAC-SASH programs to automatically participate in the equity budget. These parties believe this change would streamline the equity budget application process and make it easier for developers to identify interested customers. GRID/CHPC observe that the SGIP equity budget, SOMAH and SASH all define low-income residents according to Section 2852, and that the DAC-SASH income requirement of eligibility for the California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) is more stringent. CESA and several other parties suggest that developers have been waiting for the SOMAH program to begin accepting incentive applications for solar generation on multifamily affordable housing before applying for SGIP incentives, so that they can offer an “enhanced” solar-plus-storage value

proposition.¹² Streamlining review of eligibility requirements across these programs could stimulate an increase in equity budget applications for multifamily buildings.

4.3.2. Discussion

Allowing customers that meet the criteria for SASH, DAC-SASH or SOMAH programs to be deemed eligible for the SGIP equity budget should accelerate subscriptions by allowing for streamlined eligibility verification and easier developer identification of eligible customers. Rather than revising equity budget eligibility criteria to align with that of the low-income solar programs, our approach to allow SGIP applicants who can demonstrate they have received an incentive reserved status in any of these programs to be deemed eligible for SGIP is simpler and can be accomplished more quickly, helping avoid unnecessary delays to low-income customers. The eligibility requirements for these programs, summarized in Table 2, are so similar that allowing customers approved as eligible for the SASH, DAC-SASH or SOMAH programs to automatically qualify for the equity budget will not undermine the equity budget's adopted goals and objectives.

¹² CESA, "Comments on SGIP ACR," May 30, 2019 at 7; The SOMAH Program launched on July 1, 2019. See also: <https://www.cpuc.ca.gov/General.aspx?id=6442454736>.

Table 2: SGIP Equity Budget and SASH, DAC-SASH and SOMAH Eligibility Requirements

SGIP Equity Budget	See Table 1 above.
SOMAH ¹³	<p>Property and project eligibility criteria:</p> <ul style="list-style-type: none"> • Property must be a deed-restricted¹⁴ multifamily property of at least five units with at least 10 years remaining on the term of the property’s affordability restrictions. The property must be individually metered and eligible for virtual net energy metering (VNEM). • Property must be an existing building and located in either PG&E, SCE, SDG&E, PacifiCorp, or Liberty Utilities (CalPeco Electric) service territories. New construction projects are ineligible. • The project must satisfy one of the following: <ul style="list-style-type: none"> ○ Eighty percent of property residents must have incomes at or below 60 percent of the Area Median Income (AMI) as determined by the California Department of Housing and Community Development ; or, ○ The property must be located in a DAC as defined by CalEPA pursuant to Health and Safety Code Section 39711. For the SOMAH program, this is defined as DACs that score in the top 25 percent of census tracts statewide in the CalEnviroScreen. It also includes the 22 census tracts that are in the highest five percent of the CalEnviroScreen’s Pollution Burden.

¹³ D.17-12-022 directed the statewide PA to submit a Tier 3 advice letter with the SOMAH Program handbook. On April 2, 2019, the Commission issued Resolution E-4987 that approved the SOMAH Program handbook.

¹⁴ Eligible multifamily low-income properties must adhere to Section 2852 (a)(3)(A)(i) compliance elements for multifamily residential complexes with deed restrictions or regulatory agreements pursuant to terms of financing or financial assistance by one or more of the following: low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds or local, state, or federal loans or grants. Rents for low-income tenants must be maintained within required limits pursuant to the property’s affordable housing restrictions. The deed restriction or regulatory agreement must be independently enforceable and verifiable and cannot be contingent upon participation in the SOMAH program.

<p>SASH¹⁵</p>	<p>Participant eligibility per D.15-01-027 and the SASH Program handbook:</p> <ul style="list-style-type: none"> • PG&E, SCE, or SDG&E customer; • Own and occupy the single-family home where solar is being installed; • Have a total household of 80 percent of AMI or less based on the most recent available income tax return; and <ul style="list-style-type: none"> ○ AMI is subject to annual changes based upon the federal Housing and Urban Development income guidelines. ○ Live in a home that complies with Section 2852 (three definitions detailed in the SASH handbook).
<p>DAC-SASH</p>	<p>Participant eligibility per D.18-06-027:</p> <ul style="list-style-type: none"> • PG&E, SCE, or SDG&E customer; • Live in a single-family home that is located in a qualified DAC; <ul style="list-style-type: none"> ○ For the purpose of the DAC-SASH Program, a qualified DAC is a community that appears in the top 25 percent of census tracts statewide when using the CalEnvironScreen 3.0 tool. In addition, 22 census tracts in the highest five percent of CalEnviroScreen’s Pollution Burden, but that do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data, are also designated as qualified DACs. • Own and occupy the single-family home where solar is being installed; and <p>Meet the income eligibility requirements for the CARE or FERA programs.</p>

¹⁵ SASH Program handbook, available at:
http://gridalternatives.org/sites/default/files/SASH%202.0_handbook%20Update_FINAL.pdf.

Allowing customers that meet the eligibility criteria for SASH, DAC-SASH or SOMAH to be deemed eligible for the SGIP equity budget is reasonable in light of the lack of current equity budget participation and is approved.

4.4. Critical Resiliency Needs Customers

Current equity budget eligibility requirements do not contain any specific provisions for customers that live in HFTD as defined in D.17-12-024, customers on a medical baseline rate¹⁶ or other customers with a serious illness or condition that could become life threatening if service is disconnected.¹⁷ The availability of backup power during electrical outages caused by wildfires or PSPS events is increasingly a priority for the state of California and this Commission.

Accordingly, the SGIP ACR asked whether the Commission should add a focus on increasing customer resiliency to existing SGIP goals. In particular, the SGIP ACR asked parties to comment on resiliency needs and the resiliency benefits that energy storage can provide to customers and communities affected by

¹⁶ The 1976 Warren-Miller Lifeline Act established Section 739 authorized baselines for all customers and directed the Commission to provide larger quantities of power at the baseline rate to residential customers who have special medical needs and/or are dependent on life-support equipment. The list of conditions and devices are specified in statute as residential customers dependent on life-support equipment, including, but not limited to, emphysema and pulmonary patients. Medical baselines are set in general rate case and rate design window proceedings. See D.86087, 80 CPUC 182.

¹⁷ D.12-03-054, Ordering Paragraph (OP) 2(h) cited in D.19-05-042 at 82 states, "the utility shall provide a field person who can collect on a bill during an in-person visit prior to disconnection for medical baseline and life support customers and customers who certify that they have a serious illness or condition that could become life threatening if service is disconnected;" D.12-03-054 OP 6 states, "within 60 days of the effective date of this decision, Pacific Gas and Electric Company and Southern California Edison Company shall file compliance reports in this docket explaining (a) how they will notify customers with a serious illness or condition that could become life-threatening if service is disconnected, and who face possible disconnection of service, of their option to provide certification to that effect."

wildfire or PSPS events. The SGIP ACR also requested party input on what types of customers would benefit from such services.¹⁸

4.4.1. Party Comment

Parties are in general agreement that many customers have a need for backup power during PSPS events, outages resulting from a wildfire, flooding, or other extreme weather events, and general unplanned outages. Parties mention a range of possible durations of such outages. CESA states that typical distribution outages last from 0.5 - 4 hours, while PSPS events typically de-energize lines between 24 to 48 hours. Similarly, Sunrun and GRID/CHPC state that outages from PSPS events can last up to 48 hours, and PG&E states that outages can sometimes be multi-day events. CALSSA refers to the U.S. Department of Homeland Security's Emergency preparedness information which advises people to be prepared for an outage lasting 72 hours. SoCalGas states that electric outages can last several days or even weeks.

Parties also identify common customer needs during outages. These include maintaining critical loads at an individual residence, business or community emergency infrastructure, and in particular, maintaining sufficient power to provide for the electricity requirements of critical care customers. Parties recommend that the Commission define critical care customers for SGIP purposes to include customers on a medical baseline rate and customers who are medically at risk in the event of an outage lasting longer than two hours.

Several parties (Cal Advocates, CSE, CALSSA, GRID/CHPC and Sunrun) recommend that the Commission prioritize customers living in HFTD areas

¹⁸ SGIP ACR, April 15, 2019 at 18.

identified as at extreme risk (Tier 3) for wildfires for SGIP resiliency incentives.¹⁹ The Joint CCAs state that the more isolated HFTD Tier 3 or Tier 2 (at elevated risk) communities served by higher-risk, more difficult to reach transmission lines have particularly high resiliency needs. CSE also mentions the California Department of Forestry and Fire Protection's (CAL FIRE's) list of Priority Landscapes for Reducing Wildfire Threat to Communities as a tool to prioritize communities most in need.²⁰ CSE recommends that the Commission adopt clearly defined, objective, and easily verifiable eligibility criteria for resiliency purposes, for instance by ensuring that eligibility can be easily ascertained by reference to pre-established census tract maps and/or a finite list of customer categories.

Several parties detail essential services that must be available during PSPS or other events, including electric service to emergency shelters, community centers, community shelters, fire stations, police stations, emergency operation centers, emergency health care facilities, local assistance centers and for priority loads that include heating, cooling, refrigeration, lighting, phone charging. PG&E states that priority customers include county, state and federal agencies such as CAL FIRE, the United States Forest Service (USFS), and the Bureau of Land Management (BLM). CSE states that certain research institutions need continuous power to maintain refrigeration and other equipment.

¹⁹ The Commission identified HFTDs in a process initiated in D.17-01-009 and modified by D.17-06-024.

²⁰ California Department of Forestry and Fire Protection, "Community Wildfire Prevention & Mitigation Report," February 22, 2019 at 25, available here: <https://assets.documentcloud.org/documents/5759583/Cal-Fire-2019-Community-Wildfire-Prevention-and.pdf>

Parties also generally agree that the resiliency benefit that storage can provide greatly varies depending on: (1) the size of the battery relative to the needed load; (2) whether it is paired with on-site generation; (3) the state of charge of the storage device at the time power is lost; and, (4) whether the storage device is wired to provide energy to all loads or only critical loads during an outage.

Parties suggest that, depending on these factors, the resiliency benefits that storage systems can provide range from limited time-span backup power to a fully independent microgrid. SCE observes that storage devices are less likely to be able to meet an extended outage lasting 12 hours or longer without on-site generation and possibly without longer duration storage solutions. CESA states that, by targeting critical loads and pairing on-site generation with commercially available batteries, a typical residential storage device has the ability to ride-through a multi-hour or multi-day outage or de-energization event. Tesla states that its residential Powerwall is designed to provide whole-home or partial home backup, with the latter meaning that a customer designates a subset of loads to power during an outage. The average residential customer load in California is 18 kilowatts per hour (kWh),²¹ which, when considered with the information provided by Tesla,²² implies that one Powerwall can provide about 18 hours of backup power and two standalone Powerwalls could provide at least a full day of backup power.²³

²¹ CALSSA, "Comments on SGIP ACR", May 30, 2019 at 15.

²² Tesla, "Comments on SGIP ACR," May 30, 2019 at 11 states that, "Assuming an average onsite use of 25 kWh/day for a home, Tesla estimates that a full day of backup would require the deployment of two Powerwalls. However, if paired with solar, this same deployment could provide backup power for 7 or more days."

²³ Tesla Powerwall, available here: <https://www.tesla.com/powerwall>

4.4.2. Discussion

This decision establishes a new SGIP equity resiliency budget. Storage systems that are currently eligible for SGIP appear to be appropriate for customers to use to maintain critical electric supply during PSPS or other outages. If coupled with on-site solar generation, SGIP storage systems with long duration discharge appear to have the technical capacity to provide electricity supply to critical customer loads for multiple hours during multi-day outages. The Commission prohibited approval of SGIP incentives for projects intended to only or primarily provide backup power in D.01-03-073. The Commission's reasoning at the time was that SGIP incentives are intended for distributed energy resources that provide grid benefits and projects used only or primarily for backup purposes do not provide grid benefits.²⁴ It is important to note, however, that SGIP projects are allowed to provide backup power if they also meet the SGIP's other system and operational requirements as these ensure that SGIP projects provide grid benefits and reduce GHGs. The equity resiliency budget meets this requirement because all other SGIP requirements continue to apply.

The new SGIP equity resiliency budget is for residential equity budget customers with specified critical resiliency needs located in Tier 3 HFTDs, with the exception that such customers are not required to live in a single family home subject to resale restrictions or in multifamily deed restricted housing, and for non-residential customers providing critical facilities to communities in Tier 3 HFTDs that are otherwise eligible for the equity budget. We target the program to residential customers in Tier 3 HFTDs and the critical facilities that support

²⁴ See SGIP 2017 handbook Section 4.2.4, Ineligible Equipment, at 39, available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>

them because Tier 3 HFTDs have previously been identified by CAL FIRE and the Commission as areas of the state that are most likely to be impacted by wildfires. In the absence of further detailed information, we conclude that the Tier 3 HFTDs are also areas likely to be impacted by PSPS events that are intended to avoid wildfires. Many of the eligible non-residential facilities would also likely provide services or infrastructure to customers in Tier 2 HFTDs that are adjacent to the Tier 3 districts, and this would not exclude the facilities from the equity resiliency budget. For the equity resiliency budget, we also waive the requirement that medical baseline customers or customers that have notified their utility of a life-threatening illness must live in a single family home subject to resale restrictions or in multifamily deed restricted housing. Applying this limitation would too restrictive and would excessively limit participation in the new program.

Residential customers are eligible for the equity resiliency budget if they meet each of the following criteria:

1. Are located in a Tier 3 HFTD; and,
3. Are one of the following:
 - i. Eligible for the equity budget; or,
 - ii. Medical baseline customer; or
 - iii. Customer that has notified their utility of serious illness or condition that could become life-threatening if electricity is disconnected.²⁵

We call these customers “SGIP critical resiliency needs” residential customers.

²⁵ D.12-03-054.

We also approve certain non-residential customers as eligible for the equity resiliency budget. Non-residential customers eligible for the equity resiliency budget must be located in a Tier 2 or Tier 3 HFTD and provide critical services or critical infrastructure during a PSPS event to customers located in a community located in a Tier 3 HFTD and eligible for the equity budget.

D.19-05-042 defines these terms as follows:

First responder/emergency responder/emergency response provider:

Individuals who, in the early stages of an incident, are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers. The term 'emergency response providers' includes federal, state, and local governmental and nongovernmental public safety, fire, law enforcement, emergency response, emergency medical services providers (including hospital emergency facilities), and related personnel, agencies and authorities.²⁶

Critical facilities and critical infrastructure:

Facilities that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during de-energization events. Police stations; fire stations; emergency operations centers; medical facilities including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities; schools and licensed daycare centers; public and private utility facilities vital to maintaining or restoring normal service, including, but not limited to, interconnected publicly-owned utilities and electric cooperatives; facilities associated with the provision of drinking water including facilities used to pump, divert, transport, store, treat and deliver water; communication carrier infrastructure including selective routers, central offices, head ends, cellular switches, remote

²⁶ D.19-05-042, Appendix C at C4. The terms critical facilities and critical infrastructure can be used synonymously.

terminals and cellular sites (or their functional equivalents); jails and prisons.²⁷

These definitions were adopted for notification purposes. For SGIP, we adopt a somewhat narrower definition that includes only the most critical facilities and infrastructure and those with the least ability to fund a storage system. Our intent with the new budget is to target customers that qualify for the equity budget that are located in Tier 3 HFTDs. However, we approve non-residential customers located in Tier 2 HFTDs as also eligible for the equity resiliency budget if they provide emergency response services and/or critical infrastructure to equity budget-eligible communities in Tier 3 HFTDs because, particularly in sparsely populated counties, the facilities providing the services may be located in nearby Tier 2 HFTD communities. We also add to our adopted definition any locations designated by investor-owned utilities (IOUs) to provide customers with assistance during a PSPS event and government-designated cooling centers.²⁸ In addition, in light of the focus of this program on equity, we include homeless shelters supported by federal, state, or local governments that provide services for members of a community in a Tier 3 HFTD, without a further requirement of eligibility for the equity budget.

We approve the following facilities as eligible for the equity resiliency budget if they are located in a Tier 2 or Tier 3 HFTD and provide critical services or infrastructure for a community that is located in a Tier 3 HFTD and eligible for the equity budget:

²⁷ *Ibid* at C2.

²⁸ Resolution ESRB-8, directs IOU to develop De-energization Plans, which must include Public Outreach, Notice and Mitigation Plans that include how the IOU will assist customers during PSPS events, and to file reports after PSPS events that identify all community assistance locations that were activated and describe the assistance that was provided.

Police stations; fire stations; emergency response providers as defined in D.19-05-042; emergency operations centers; medical facilities including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities; public and private gas, electric, water, wastewater or flood control facilities; jails and prisons; locations designated by the IOUs to provide assistance during PSPS events; cooling centers designated by state or local governments; and, homeless shelters supported by federal, state, or local governments.

We call these SGIP critical resiliency needs non-residential customers. Our adopted approach enables the Commission to target limited equity budget incentive funds to the most vulnerable customers and to those that provide critical services or infrastructure. We discuss this issue further in Section 5, which adopts an equity resiliency incentive for customers with critical resiliency needs and Section 11, which adopts the equity resiliency budget.

5. Equity Budget Incentive Design

The Commission adopted an incentive structure that reduces or steps-down incentives for energy storage projects with discharge durations longer than two hours in D.16-06-055. This duration step-down incentive structure applies to all storage projects, including equity budget projects.²⁹ The Commission adopted this approach to prioritize SGIP incentives for storage with a discharge duration of two hours or less because it believed that economies of scale for longer duration projects reduces battery costs even if associated system costs stay roughly the same. D.16-05-055 reduced SGIP incentives for energy storage projects to 50 percent for capacity discharged beyond two hours,

²⁹ Although D.16-06-055 adopted the duration step-down incentive structure prior to the establishment of the equity budget in D.17-10-004, the latter decision stipulates that “all existing SGIP rules apply unless expressly changed pursuant to this decision;” D.17-10-004 at 8.

25 percent for capacity discharged beyond four hours, and eliminated for capacity discharged beyond six hours.³⁰

The Commission adopted the SGIP equity budget incentive structure in D.17-10-004. D.17-10-004 “links” the equity and general storage incentives by requiring each PA’s general storage incentives to reach step three before that PA’s equity budget could open with an equivalent incentive level. D.17-10-004 also directs each PA to individually increase or “step-up” its equity budget incentive rate by \$0.05/Wh after any rolling three-month period in which the equity budget confirms zero incentive reservations for storage projects and the PA’s general budget confirms at least five reservations. D.17-10-004 caps equity budget incentives at \$0.50/Wh.

This section modifies the incentive step-down structure for longer duration projects adopted in D.16-06-055 and applies this modification to equity budget projects only. It also modifies the current general equity budget incentive structure by raising incentive levels, eliminating the step-up structure and delinking the equity budget from PAs’ general storage incentives. Finally, it approves a higher equity resiliency incentive for equity budget customers with critical resiliency needs.

5.1. Step-Down of Incentives Based on Duration

The SGIP ACR requested parties to comment on whether and how the Commission should promote SGIP projects that provide resiliency benefits through the provision of longer duration backup power. Specifically, it asked whether the Commission should modify the existing SGIP incentive structure to facilitate storage projects with a discharge duration exceeding two hours.

³⁰ D.16-06-055 at 28.

This section addresses these questions as they pertain to the equity budget only. A subsequent decision in this rulemaking may address broader resiliency policy questions for the SGIP general storage budgets.

5.1.1. Party Comments

Commenting parties strongly support removing the current SGIP step-down structure for long duration storage, stating that longer duration projects are increasingly useful for providing grid services and resiliency benefits. CSE states that removing or modifying the discharge duration step-down requirement may simplify technical review processes and ease administrative burden. CESA observes that peak periods currently span four to five hours and that modifying the duration step-down structure would send an “effective market signal highlighting the importance of and the need to transform the market for longer duration storage.”³¹

CSE observes that longer duration storage is well suited to provide GHG benefits because “it allows a system to discharge over a substantial portion of non-coincident peak periods, and it allows systems to strategically time system charge during lower marginal GHG emissions periods, without prematurely depleting the battery.”³² CSE recommends that SGIP retain an overall incentive cap such that any capacity above six hours of duration does not receive an incremental incentive. CSE states that this will help ensure that storage projects benefit from economies of scale when adding kWh capacity to an installation, a concern discussed when the duration step-down design was adopted in

³¹ CESA, “Comments on SGIP ACR” at 19.

³² CSE, “Comments on SGIP ACR,” May 30, 2019 at 18.

D.16-06-055. CESA, Tesla and CSE propose slightly different incentive structures, as summarized in Table 3.

Table 3: Current and Proposed Designs for Incentives Step-Down for Duration

Discharge Duration (hours)	Percent of Base Incentive (current)	Percent of Base Incentive (CESA)	Percent of Base Incentive (Tesla)	Percent of Base Incentive (CSE)
0-2	100	100	100	100
2-4	50	100	100	100
4-6	25	75	50	Not provided
6-8	0	50	25	0
8+	0	25	0	0

5.1.2. Discussion

We approve CSE's proposed modifications to the incentive rate step-down structure based on duration, with the modification that storage systems with a discharge duration of four to six hours receive 25 percent of the base incentive rate, rather than no incentives. We apply this modification only to the equity budget at this time and stress that all longer duration SGIP projects must meet all GHG emission reduction, cycling and other system and operational requirements adopted by this Commission for SGIP storage systems as these requirements ensure that longer duration SGIP storage projects will not be used only or primarily to provide backup power. Longer duration SGIP storage projects are well suited to provide resiliency services during PSPS or other outage events but must also provide the grid and GHG emission reduction services required by Section 379.6 and this Commission. Adopting, with modifications, CSE's proposal to step-down incentives for longer duration equity budget projects supports use of SGIP incentives for resiliency purposes but ensures that projects

with discharge durations longer than four hours that should be able to benefit from economies of scale will not be over-incentivized.

A two-hour battery that is operated to provide customer, grid and GHG emission reduction benefits can fully charge in a relatively short period of time after a customer receives notice of a potential PSPS and be ready to operate in backup mode. Even with longer duration storage, since potential PSPS events are generally announced a day in advance, there will be ample time for the battery to charge. However, as storage duration increases, operating the battery to provide customer, grid and GHG benefits may not be consistent with providing the time needed to fully charge the battery after a potential PSPS is announced.

In addition, charging a longer duration battery in advance of a potential PSPS may increase the customer's use of peak period grid electricity. Because the record does not include any modeling by the SGIP technical working group (TWG) or parties that would shed more light on this issue, or on the impact on a customer's GHG emissions of longer duration batteries, it is incumbent on battery system developers to ensure that longer duration battery systems that are intended to provide backup power are operated in a manner that complies with all SGIP program rules and requirements.

5.2. Incentive Levels

Equity budget starting incentive levels and those as of July 2019 are indicated in Table 4 and are presented with and without the SGIP adjustment for the federal investment tax credit (ITC).³³

³³ SGIP handbook at 24, available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>

Table 4: SGIP Equity Budget Incentive Structure³⁴

Technology	Initial Incentive	Current Incentive ³⁵
Energy Storage (\$/Wh)		
Non-residential equity	0.35	0.35-0.50
Non-residential equity + ITC	0.25	0.25-0.40
Residential equity	0.35	0.35-0.50
Residential equity + ITC	0.25	0.25-0.40

The SGIP ACR asked parties to comment on the program changes the Commission should consider in order to increase subscriptions in the equity budget, including whether the equity budget incentive structure should be modified. The SGIP ACR also asked parties if the Commission should direct PG&E to open step three of its storage equity budget prior to opening step three of its general storage budget.

5.2.1. Party Comments

Parties including CALSSA, Tesla, SCE, GRID and CESA broadly agree that the main barrier to equity budget participation is a lack of financing or access to capital. These parties recommend that the Commission increase equity budget incentives to cover all, or nearly, all residential storage project costs. Parties argue that this would bring the equity budget design into alignment with the SASH and DAC-SASH programs, which fully cover costs for participating low-income customers.³⁶

³⁴ D.17-10-004, p. 23-25.

³⁵ Current incentive rates vary by PA service territory depending on which step the PA is in. See https://www.selfgenca.com/home/program_metrics for incentive rates by PA.

³⁶ D. 15-01-027 at 47, Conclusion of Law 38 and D.18-06-027 at A-5; the reauthorized SASH program and the new DAC-SASH program provide incentives of \$3.00/watt. The PA of both programs combines this funding with the solar ITC and other resources to fully cover the cost of

Footnote continued on next page

Parties propose a range of incentive increases to accomplish this goal. Tesla recommends increasing the equity budget incentive to between \$0.65/Wh and \$0.85/Wh. CALSSA recommends that equity budget incentives be set at 85 percent of the total installed median cost of residential storage systems added to the SGIP database over the last six months, or \$0.80/Wh.³⁷ Tesla reports installed costs for its residential Powerwall systems of \$0.73/Wh.³⁸

GRID/CHPC and CESA recommend a tiered structure beginning at \$0.75/Wh (CESA) or \$0.85/Wh (GRID/CHPC), coupled with several additional incentive adders. GRID/CHPC state that their proposed base rate incentive would narrow the cost gap for low-income projects while the adders would “close the gap without over-incenting.”³⁹ These parties argue that “average or median residential costs reported in the SGIP program are likely to be conservative for low-income projects, which will carry extra installation costs.”⁴⁰

GRID/CHPC also recommend that the Commission approve two sets of incentive adders in addition to an equity budget incentive base rate. GRID/CHPC state that the first of these, a Resiliency Track, should start with a \$0.85/Wh base rate and allow households located in HFTD Tiers 2 and 3 to access an additional \$0.15/Wh adder, and medical baseline rate customers to access an additional \$0.10/Wh adder, for a total incentive of \$1.10/Wh for customers that meet each of the two requirements.

solar installations for qualified customers (SASH Semi-Annual Program Status Report at 7; <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442460500>).

³⁷ CALSSA, “Comments on SGIP ACR” at 10.

³⁸ Tesla, “Comments on SGIP ACR” at 8.

³⁹ GRID/CHPC “Amended Comments on SGIP ACR,” June 13, 2019 at 12.

⁴⁰ Ibid.

GRID/CHPC also propose a second Low-Income Solar Track that would offer two incentive adders to customers enrolled in the SASH, DAC-SASH or the SOMAH programs.⁴¹ GRID/CHPC propose that the Commission allow equity budget customers to use only one of the Low-Income Solar Track incentive adders and only of the two proposed tracks, such that the maximum incentive available to any given household would be \$1.10/Wh. Low-Income Solar Track incentive adders should be made available only for storage systems, GRID/CHPC state, not for any paired technology such as solar generation.

Table 5. GRID/CHPC's Proposed Equity Budget Incentive Structure

<i>Resiliency Track</i>		<i>Low-Income Solar Track</i>	
Base Incentive Rate	\$0.85/Wh	Base Incentive Rate	\$0.85/Wh
High Fire District Adder	\$0.15/Wh	SASH/DAC-SASH Adder	\$0.25/Wh
Vulnerable Customer Adder	\$0.10/Wh	SOMAH Adder	\$0.15/Wh
Total Possible Incentive Rate	\$1.10/Wh	Total Possible Incentive Rate	\$1.10/Wh

In support of their proposals, GRID/CHPC and CESA observe that co-installing residential storage with solar generation in low-income housing will encourage solar pairing, result in greater GHG reductions, enhance resiliency from solar charging during outages, and assist the most vulnerable customers.

GRID/CHPC also recommend eliminating the equity budget's step-up incentive structure, stating that this may be causing developers to delay submitting incentive applications while they wait for incentive levels to increase. GRID/CHPC recommend that the Commission adopt a longer-term and fixed

⁴¹ GRID/CHPC, "Amended Comments on SGIP ACR" at 12; GRID is the PA for the SASH and DAC-SASH programs and is part of the non-profit PA team administering the SOMAH program.

equity budget incentive level and budget as was done with the reauthorized SASH and Multifamily Affordable Solar Homes (MASH) programs.⁴²

Parties broadly support delinking the equity budget from the general storage step three incentive requirement as is currently required for two reasons. First, they state that the linkage is arbitrary, as there is no real rationale to withhold equity budget incentives in a given PA area just because the PA has not yet opened its commercial storage step three incentive level. Second, they state that the design creates uncertainty about when a given PA's equity budget will open, which dampens market interest. Parties also broadly support immediately opening PG&E's equity budget to eliminate these barriers.

5.2.2. Discussion

We adopt a two-tiered equity budget incentive rate. We increase equity budget incentives to \$0.85/Wh for equity budget customers that meet one of the following criteria:

1. The customer resides in or provides services to a Tier 3 HFTD and is a critical resiliency needs customer, as defined in Section 4.4.2; or,
2. The customer resides in a Tier 3 HFTD and has reached an "incentive reserved" status in the SASH or DAC-SASH programs (we call these the "HFTD SASH/DAC-SASH customers").

We call this new incentive the "equity resiliency incentive." For all other equity budget customers, we increase the incentive level to \$0.65/Wh. We eliminate the equity budget step-up incentive structure and the linkage between the equity budget and step three of the general storage incentives adopted in

⁴² D.15-01-027 at Conclusion of Law 35 and 38.

D.17-10-004. We direct PG&E open its equity budget as soon as possible following adoption of this decision.

Providing equity budget incentives that fully subsidize storage systems for equity budget customers in Tier 3 HFTDs with critical resiliency needs will increase the accessibility of SGIP incentives for the most vulnerable customers and for those providing critical facilities or infrastructure. Providing the same incentive levels to equity budget customers in Tier 3 HFTDs that also participate in the SASH or DAC-SASH programs increases the length of the resiliency benefits available to these customers during PSPS outages because correctly configured on-site solar generation can recharge on-site storage systems, potentially enabling the storage-plus-solar system to provide multi-day, multi-hour backup electricity for critical loads.

We have limited information on the appropriate incentive levels needed to fully subsidize but not over-subsidize equity budget storage systems. Given the information we have, however, we believe that an incentive of \$0.85/Wh for customers with critical resiliency needs and customers located in Tier 3 HFTDs participating in the SASH or DAC-SASH programs will fully subsidize such systems while discouraging developers from inflating costs.

We provide some context for our adopted equity resiliency incentive levels. D.17-10-004 caps the equity budget incentive rate in any given PA territory at \$0.50/Wh. At this incentive rate, a median 13.2 kWh, two-hour residential storage system would receive a \$6,600 incentive or about 50 percent of the median \$13,500 cost of a residential system.⁴³ At \$0.85/kWh, the same system would receive \$11,200, or 83 percent of its total eligible cost. Tesla states

⁴³ SGIP Project Database, SelfGenCA.com (accessed 7/22/19).

that a single Powerwall system is a 13.5 kWh five kW battery system that costs \$9,800.⁴⁴ Under the existing program, a \$0.35/Wh incentive, for instance in PG&E's territory, would cover 48% of the total cost (\$4,725), while with the \$0.85/Wh subsidy, the incentive would cover 100% of the cost.

In some cases, however, a smaller battery system may be sufficient to provide for a customer's critical electricity needs during a PSPS event and the cost will be less than the above estimates. As discussed later, however, the incentives awarded must not exceed the cost of the system. We encourage developers to realistically assess the customer's needs and propose an appropriate scale solution.

In addition, we would like to guard against the possibility that, with the more generous incentives approved here, developers or vendors may absorb an additional profit margin and not pass on all of the cost savings enabled by SGIP equity budget incentives to customers. If this were to occur, it would undermine our intent, which is not to increase revenue for developers, but rather to reduce costs to customers of installing storage systems that provide customer and grid benefits, lead to increased customer demand, and, in turn, lower energy storage manufacturing, installation, and operation costs. Accordingly, SGIP developers should not increase the price of a system because incentives are available. To accomplish this, we direct the PAs to add the following statement to the SGIP handbook: "Vendors/developers shall not sell a storage system that receives incentives for a total price (before incentives) that is greater than the price they sell a comparable system that does not receive incentives."

⁴⁴ Tesla, "Comments on SGIP ACR" at 8.

In the California Solar Initiative (CSI) solar photovoltaic (PV) program, the Commission adopted a “soft cap” on the price of a solar PV system that received CSI incentives to protect the interests of consumers, based the soft cap on publicly available CSI cost data, and allowed developers to submit a “high cost justification” to exceed the cap if necessary.⁴⁵ The Commission has considerable public data on SGIP system costs and we are interested in exploring this option for the SGIP equity budget.

To accomplish this, we direct the PAs to work with Commission staff to determine if it is feasible to implement a price cap on systems receiving SGIP equity budget incentives, if there should be any exceptions to such an approach, how to address longer duration batteries, and other issues about how to implement such a cap. If appropriate, we authorize the PAs to file a proposal on this topic as a Tier 2 advice letter.

An incentive of \$0.65/Wh for all other equity budget customers increases the accessibility of SGIP incentives for equity budget customers while targeting those most in need. Eliminating the existing equity budget incentive step-up structure adds predictability and will help spur developer investment by removing any rationale for developers to wait for incentives to increase.

Adopting a two-tier equity budget incentive structure that fully, or nearly fully, subsidizes storage systems for qualifying customers should stimulate rapid growth in subscriptions by the customers that are most in need or that would most benefit from storage during a PSPS event because they have on-site solar-plus-storage systems that can provide multi-day, multi-hour backup

⁴⁵ Resolution 4396-E, September 2011; CSI Handbook, Section 3.4.5, available here: <https://www.cpuc.ca.gov/General.aspx?id=5367>.

electricity for critical loads. Eliminating the step-up incentive structure will ensure that developers do not delay initiating equity budget projects while they wait for incentive levels to rise. Our approved approach addresses the key barrier of lack of access to capital or financing by low-income customers and removes unnecessary barriers to participation in PG&E service territory by directing PG&E to immediately open its equity budget.

We direct the PAs to jointly submit a Tier 2 advice letter within 90 days of issuance of this decision proposing changes to the SGIP handbook to implement this and the other modifications to the SGIP adopted in this decision. The effective date for the modifications adopted in this decision is April 1, 2020.

The equity budget incentive structure shall remain fixed as adopted in this decision unless modified by a future Commission decision. However, the Commission will monitor equity budget subscription rates and may consider modifications if warranted.

6. Program Requirements to Support Resiliency Benefits

The SGIP handbook includes a number of technical and operational requirements for SGIP projects including annual charge and discharge (cycling), round-trip efficiency and GHG emission reduction requirements, which ensure that SGIP projects provide grid benefits. In addition, SGIP projects that operate in parallel with the grid must comply with Rule 21 interconnection and operating requirements, which require IOUs to verify certain technical and safety requirements.

The SGIP ACR asked for parties' input on whether and how the Commission should seek to stimulate applications for SGIP projects that provide resiliency benefits to customers or communities facing risks of wildfire, wildfire

related PSPS events, or other types of adverse events. This section addresses these questions as they pertain to the ability of projects applying for equity budget incentives to provide resiliency benefits.

6.1. Party Comments

Most parties agree that storage systems designed to provide resiliency and grid services must have the ability to “island” or to safely operate in isolation from a de-energized grid. CSE recommends that “projects should both attest and demonstrate that they are technically capable of islanding during a grid outage, as well as be able to provide a resiliency service of value to the customer.”⁴⁶ The NFCRC observes that the New York State Energy Research and Development Authority requires recipients of incentives from its stationary fuel cell program that claim “grid independence” to “demonstrate the actual operation in ‘grid-parallel’ mode, its transition to and operation in standalone mode where it actually services the facility to the fullest extent intended, and its transition back to and operation in grid-parallel mode.”⁴⁷ CSE suggests that developers providing resiliency services be required to provide “attestations, specifications, monitoring plans, and/or single line diagrams.”⁴⁸

6.2. Discussion

The IOUs’ Rule 21 Tariffs define islanding as “a condition on distribution provider’s distribution system in which one or more Generating Facilities deliver power to customers using a portion of distribution provider’s distribution system that is electrically isolated from the remainder of distribution provider’s

⁴⁶ CSE, “Comments on SGIP ACR” at 17.

⁴⁷ NFCRC, “Comments on SGIP ACR” at 20.

⁴⁸ CSE, “Comments on SGIP ACR” at 17.

distribution system.”⁴⁹ Storage systems receiving SGIP equity resiliency incentives or equity budget projects with discharge durations longer than two hours must be able to island and to operate when the distribution system is experiencing an outage in order to maximize the provision of resiliency services.

We adopt a new requirement that PAs must confirm that SGIP equity budget projects serving resiliency purposes have been inspected and approved as able to island during by local authorities having jurisdiction (AHJs). This decision specifies an additional requirement that for equity resiliency projects and equity budget projects with longer than a two-hour discharge duration, applicants must demonstrate to the PAs that an AHJ has inspected and approved that the system can operate in island mode during an outage when submitting the incentive claim form.

This requirement is necessary to ensure that SGIP equity budget projects intended for resiliency purposes are capable of safely islanding and providing backup power during an outage. The additional requirement is necessary because the safety of operation at the building during island mode is beyond the scope of issues the Commission has addressed in Rule 21. Since islanding is a relatively new practice, we want to ensure that local building authorities receive the relevant information and determine that the storage system (and solar generation, if present) will operate safely in island mode.

In addition, we adopt new information submittal requirements for developers applying for the equity resiliency budget and for any equity budget project with a longer than two hour discharge duration. In addition to the existing requirements, we direct the PAs to modify the SGIP application form to

⁴⁹ See for example, PG&E’s Rule 21 Tariff, Section C, available here:
https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_RULES_21.pdf

require these applicants to: (1) provide an estimate of how long a project's fully charged battery will provide electricity for the relevant facility average load during an outage; (2) indicate whether a project's critical loads can and will be isolated and, if so, provide an estimate of how long the project's fully charged battery will provide electricity critical uses during an outage; (3) attest to the truth of the information provided and that this information has been given to the customer before they sign a contract. These requirements will ensure that customers that install SGIP projects with the expectation that they will provide resiliency services are basing this on accurate information, especially given that customers may rely on the backup power for critical health and safety needs and may forego making other emergency plans for electricity outages. PAs shall include these modifications and outline the procedures required for a project to demonstrate that an AHJ has inspected and approved that the system can operate in island mode during outages in the Tier 2 advice letter directed elsewhere in this decision.

Resiliency benefits will vary depending on the design of the system and the duration of the PSPS event.⁵⁰ A customer with storage paired with solar – the majority of new residential SGIP participants in recent years – will experience the most resiliency benefits because the battery can recharge when the sun is shining.⁵¹ In addition, the availability of backup power can be extended by limiting it to the most critical loads. Even if backup power from a battery does

⁵⁰ IOU De-energization Reports that must be submitted to the Commission with the specific dates and time of de-energization of each affected circuit are available here:

<http://www.cpuc.ca.gov/deenergization>.

⁵¹ SGIP Weekly Statewide Report from July 22, 2019,

https://www.selfgenca.com/documents/reports/statewide_projects

not last for the full duration of a PSPS event, it will provide benefits to a customer for some period of time and will provide time to make other arrangements in the event of an extended outage that creates a health risk.

Adopting a minimum of practical system and program requirements for the equity resiliency budget and equity budget projects with a longer than two hour discharge duration ensures that systems have the technical capacity and are interconnected to operate for the purposes for which the SGIP incentive was designed, that customers' receive the expected resiliency benefits, and that customers can better withstand longer outages, whatever the cause.

7. Safety Issues

The SGIP handbook requires all SGIP-eligible technologies to be certified for safety by a Nationally Recognized Testing Laboratory (NRTL), including equipment used for islanding purposes.⁵² Applicants must submit proof of certification with incentive claim documents at the latest and failure to do this results in the cancelation of the project.⁵³ SGIP projects must also comply with Rule 21 interconnection standards that require "anti-islanding" capabilities that serve to detect and de-energize the interconnected system in case of an outage.⁵⁴ Rule 21 requires that storage systems can safely re-connect to the grid following an outage without interfering with the grid's operation.⁵⁵

⁵² SGIP 2017 handbook at 37, available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>.

⁵³ *Ibid.*

⁵⁴ "Anti-islanding" and "islanding" capabilities are not mutually exclusive. Anti-Islanding capabilities prevent backfeed into lines. Islanding capabilities enable the operation of the grid in isolation. The system needs to be able to do both. See PG&E Rule 21, Section H.1 and Hh.1, available here: https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_RULES_21.pdf

⁵⁵ *Ibid* at Section H.2 and Hh.2.

The SGIP ACR requested parties to comment on the question of whether or not the use of storage during PSPS events introduces public safety risks and to include recommendations for mitigating any identified risks.⁵⁶

7.1. Party Comments

Parties generally agree that energy storage systems do not create a significant source of ignition or other safety risk even when used for backup purposes. Several parties identify several safety standards and requirements already in place for storage devices, in addition to those required by SGIP. For instance, CESA states that United Labs, the Institute of Electrical and Electronics Engineers, and the National Fire Protection Association have national standards pertinent to storage systems and provides a list of applicable standards addressing fire risks (Attachment C). CESA states that the California Building Standards Commission (CBSC) and AHJs have location- and state-specific codes and permit requirements to enhance safety of energy storage systems. CESA also states that these bodies have preventative standards (for example, to control thermal runaway risks) and response-related standards (for example, related to fire suppression, notification, and fire responder processes).

PG&E and Cal Advocates identify two risks posed by any backup generation resource: (1) electricity backfeeding into lines that were meant to be de-energized; and (2), if private overhead lines were to remain energized while the surrounding distribution system is de-energized. Cal Advocates and SDG&E contend that it is important for utilities, contractors, customers, and Commission staff to collaborate to ensure that installed backup generation resources maintain the safety and reliability of the distribution system. Sunrun states that its safety

⁵⁶ SGIP ACR, April 15, 2019 at 19.

precautions include ensuring its installation workforce is highly trained and requiring on-site testing to verify that storage systems are properly installed and function safely. Several parties mention that they believed the safety risks associated with mobile diesel backup generation resources are much greater than those associated with electrochemical or thermal energy storage systems, including the risks of carbon monoxide exposure and as an alternative source of ignition for wildfires.

7.2. Discussion

Based on parties' comments, we conclude that Rule 21 interconnection tariffs and the SGIP rules are adequate to address the safety risks posed by installing energy storage systems, including systems installed for resiliency purposes. No parties suggest additional safety requirements for SGIP storage systems beyond the measures already in place. As several parties observe, SGIP eligible technologies, including storage, must be certified for safety by a NRTL. SGIP systems must also comply with Rule 21 interconnection and operating requirements, as discussed above, which ensure that the SGIP system is able to connect safely with the distribution system. Compliance with Rule 21 requires anti-islanding capabilities, which prevent backfeed into distribution lines that are meant to be de-energized.

Local, state and federal codes require additional measures to ensure that energy storage systems are safely installed and operated. As noted by CESA, energy storage system installation practices must comply with applicable AHJ code or permitting requirements and the National Electrical Code, which is implemented through the California Electrical Code.⁵⁷ Installation practices for

⁵⁷ California Code of Regulations, Title 24, Part 3.

storage systems larger than 20 kWh must comply with California Fire Code Section 608 on installation of Stationary Storage Battery Systems.⁵⁸ There are requirements for marking and labeling storage systems that are intended to alert first-responders to the presence of a storage system in the event of an emergency.⁵⁹ The Commission also provides a list of codes, standards, and safety best practices for installation of energy storage.⁶⁰ These installation and safety requirements are designed ensure the safety of a storage system in relation to its environment and to minimize the risk of backfeed onto de-energized lines.

Given the safety compliance measures for SGIP and storage systems in place, there is no evidence at this time that additional safety protocols are needed for SGIP systems using storage for resiliency purposes.

8. Technical Barriers to Participation

Parties identify several types of technical barriers that inhibit equity budget subscriptions. This section discusses these issues and adopts several new requirements. It directs the SGIP PAs to modify SGIP eligibility requirements section to include systems that interconnect to the local electric utility's distribution system under the requirements of the VNEM tariff. It require SGIP PAs to update system-sizing requirements for multifamily housing to improve procedures for accessing and using a multifamily property's historical electrical

⁵⁸ See California Building Standards Commission at <https://www.dgs.ca.gov/BSC>

⁵⁹ California Fire Code, CA Code of Regulations, Title 24, Part 9, Section 608.7 (for storage systems larger than 20 kWh), available here: <https://www.citymb.info/Home/ShowDocument?id=28089>; and, UL 9540 Standard for Energy Storage Systems and Equipment, available here: https://standardscatalog.ul.com/standards/en/standard_9540_1.

⁶⁰ CPUC, Safety Best Practices for the Installation of Energy Storage, available here: <https://www.cpuc.ca.gov/General.aspx?id=8353>

usage to size SGIP systems. This section also modifies current SGIP handbook requirements that reduce SGIP incentives for equity budget projects that receive other IOU or non-IOU incentives or financing.

8.1. Party Comments

Several parties including CALSSA, CESA, GRID/CHPC and SCE suggest that the Commission modify SGIP requirements to allow customers enrolled in a VNEM tariff to participate in the SGIP equity budget.⁶¹ These parties state that SGIP rules currently preclude the participation of VNEM customers because they require subsidized systems to be installed “on the host customer’s side of the electric utility meter.”⁶² According to these parties, this requirement has the unintended result of disallowing VNEM customers from participating in SGIP because VNEM tariffs require participating solar generation systems to be installed at a “dedicated point of interconnection on the utility side of the meter.”⁶³ These parties recommend that the Commission modify the SGIP definition of “host customer” to include VNEM properties.

CALSSA further recommends that the Commission modify current SGIP requirements for estimating a storage system’s size when a project is applying for SGIP incentives for multifamily housing. CALSSA states that the SGIP’s current storage sizing requirements inhibit the participation of customer

⁶¹ VNEM is a tariff available to multitenant properties that enables an owner of such property to allocate a solar system's benefits to tenants across multiple units. Tariff rules allow the system owner to allocate renewable generation bill credits between common load areas and tenants along a single service or multiple service delivery points. *See also* <https://www.cpuc.ca.gov/General.aspx?id=5408>.

⁶² SGIP 2017 handbook Section 4.2.2 at 38 available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>. *See also*, CALSSA, “Comments on ACR,” at 9.

⁶³ CALSSA, “Comments on SGIP ACR” at 9.

locations with many participating accounts, such as multifamily housing, because it is impractical for developers to obtain historical usage data for each customer in a multifamily housing unit. CALSSA recommends that the Commission modify SGIP system sizing requirements and base them on the number and size of the dwellings that the system will serve as long as these are all on the same VNEM tariff. CALSSA notes that the Commission made this change for the MASH program and that it is equally appropriate here.⁶⁴

GRID/CHPC suggest that the Commission eliminate program restrictions that disallow a customer from combining SGIP incentives with incentives from other programs for equity budget projects. GRID/CHPC observe that under existing SGIP requirements, customers who receive a non-SGIP incentive funded 100 percent by IOU ratepayers must have their SGIP incentive reduced by the full amount of the other incentive and customers who receive a non-SGIP incentive funded by a non-IOU source must have their SGIP incentive reduced by 50 percent of the amount of the non-SGIP funding source.⁶⁵ GRID/CHPC contend that it is essential that equity budget storage projects are permitted to leverage other funding sources in order to spur participation in the program. These parties recommend waiving the combined incentives restriction in SGIP for equity budget projects.

GRID/CHPC and CESA also request that the Commission modify the cycling requirement for equity budget systems intended to provide resiliency benefits in addition to grid services. SGIP storage systems are required to charge and discharge (cycle) between 52 and 130 times per year in order to ensure that

⁶⁴ D.08-10-036 at 33 and 39 and Conclusion of Law 19.

⁶⁵ 2017 SGIP handbook at 30, available here <https://www.cpuc.ca.gov/General.aspx?id=5935>.

the system provides grid and GHG emission reduction benefits and is not being used only for backup. These parties recommend that the Commission reduce annual cycling requirements for equity budget systems intended to provide resiliency benefits to just 15 cycles per year in order to help ensure that the systems are charged and ready to provide backup power in the event of a PSPS. GRID/CHPC and CESA assert that this change is justified because systems complying with existing SGIP cycling requirements may not have sufficient power stored to provide backup power during an outage.

8.2. Discussion

Approximately 43 percent of California's low-income population resides in multifamily housing and SGIP rules should not preclude multifamily buildings including those taking service under a VNEM tariff from also benefiting from SGIP storage incentives.⁶⁶ It is also appropriate to update SGIP multifamily storage project system sizing requirements to remove any barriers to participation.

We direct the SGIP PAs to modify SGIP eligibility requirements to include systems that interconnect to the local electric utility's distribution system under the requirements of the VNEM tariff. While CALSSA suggests modifying the host customer definition in the SGIP handbook, it appears that a more appropriate approach is to adjust SGIP eligibility requirements to ensure that the requirements for taking service under the VNEM tariff do not preclude otherwise eligible projects from participating in SGIP. With this adjustment, the

⁶⁶ Energy Savings Assistance Program Multifamily Segment Study Volume 1: Report, The Cadmus Group, Inc, December 4, 2013.

existing host customer eligibility requirements for VNEM customers should be sufficient.

We direct the PAs to review and update the SGIP's system-sizing requirements for multifamily housing based on a property's historical electrical usage. Historical electrical usage information is now available for all IOU multifamily buildings because PG&E, SCE and SDG&E have implemented processes to enable property owners to determine their building's aggregated historical energy usage in response to AB 802 (Williams, 2015).⁶⁷

PG&E, SCE, SDG&E and the SOMAH PA are currently developing automated processes by which the SOMAH PA and SOMAH applicants can determine the energy usage of multifamily tenant and common area loads for participating properties.⁶⁸ We expect that the SGIP PAs can leverage these processes to ensure that SGIP storage projects benefitting tenants, common-areas, or a whole multifamily building are sized correctly. We direct SDG&E and the SGIP PAs to discuss their AB 802 and SOMAH program building benchmarking processes with the SGIP TWG to identify the best methods to apply these or similar tools to the SGIP. Based on these discussions, the SGIP PAs shall propose

⁶⁷ As of January 1, 2017, Assembly Bill (AB) 802 requires that energy utilities provide building-level energy use data to building owners, owners' agents, and operators upon request for buildings with no residential utility accounts and for buildings with five or more utility accounts.

⁶⁸ D.17-12-022 and Resolution E-4987 directed the IOU/SOMAH PA automated data exchange. In the July 22, 2019 Joint Semi-annual SOMAH Administrative Expense Report, filed in R.14-07-002, the IOUs comment on the status of data exchange work, stating (at 4), that "data requests will be issued for approximately 58 applications in the next reporting period. Each data pull will need to be done manually by a Business Analyst until PG&E's SOMAH Data Portal is operational." The SOMAH program is administered by a team of non-profit organizations consisting of the CSE, GRID, CHPC and the Association for Energy Affordability.

any needed updates to SGIP's sizing requirements for multifamily housing to facilitate the participation of multifamily buildings in the SGIP.

Allowing storage developers to use a number of sources of incentives or financing for equity budget projects could help accelerate low-income customer participation in the SGIP equity budget but is appropriate only if the total subsidy does not exceed a project's total installed cost. When SGIP equity budget projects receive other incentives, SGIP incentives must be limited to the difference between the amount provided by the other funding source(s) and the system's installed cost. All SGIP applicants are currently required to disclose all incentives and funding sources leveraged for an SGIP project, including equity budget projects, and we do not modify this requirement.⁶⁹ However, for equity budget projects, we waive the SGIP handbook requirement that PAs must reduce SGIP incentives for projects that receive non-SGIP incentives funded by IOU and non-IOU ratepayer sources by the full amount and 50 percent of the amount of the other incentive(s) respectively.⁷⁰ Instead, for the equity budget, we direct SGIP PAs to reduce the SGIP incentive as needed so that the SGIP incentive and external funding combined do not exceed the total installed costs of the system.

This decision does not alter the cycling or GHG requirements for projects applying for either residential or non-residential equity budget incentives, including critical resiliency needs customers. Residential systems accessing equity budget incentives must continue to cycle a minimum of 52 times per year and must meet the GHG emission reduction requirements recently approved in

⁶⁹ 2017 SGIP handbook at 27, available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>.

⁷⁰ *Ibid* at 32.

D.19-08-001.⁷¹ Non-residential systems accessing equity budget incentives must meet the GHG requirements adopted in the same decision. Section 379.6(b)(3) requires the Commission to ensure that energy storage systems that receive SGIP incentives reduce GHG emissions. We do not have information at this time that indicates that modifications to existing cycling or GHG emission reduction requirements are needed for equity budget systems intended to provide resiliency benefits, but may consider this issue later in this rulemaking.

9. Marketing, Education and Outreach

9.1. Party Comments

Several parties state that eligible equity budget customers lack awareness of available SGIP incentives, making customer recruitment difficult. CESA states that its members also lack information on potential customers. To address this information gap, CESA, Tesla, Sunrun and other parties recommend that the Commission establish and fund a customized equity budget marketing, education and outreach (ME&O) effort. Tesla goes further to suggest that the Commission consider establishing a single statewide equity budget PA that reports directly to the Commission.

Several parties recommend co-promotion of the SGIP equity budget and the SASH, DAC-SASH and SOMAH programs. Tesla and Sunrun recommend that the Commission convene a workshop to discuss co-promotion of these programs. These parties also recommend that a customized ME&O effort identify and train “trusted ambassadors” to educate equity budget communities about the SGIP as was approved in D.18-12-015 for the SJV pilots. D.18-12-015

⁷¹ D.19-08-001, “Decision Approving Greenhouse Gas Emission Reduction Requirements for the Self-Generation Incentive Program Storage Budget,” adopted August 1, 2019.

approved a Community Energy Navigator program that will train community leaders living in pilot communities to educate their fellow community members on pilot objectives, offerings and existing low-income customer programs.⁷²

9.2. Discussion

We direct the PAs to develop a customized equity budget ME&O Plan (Plan) to co-promote SGIP equity budget incentives alongside those for the SASH, DAC-SASH and SOMAH incentives. The PAs shall consult with Commission staff on the development of the Plan, which may include convening a workshop to discuss it, and should include a proposal for co-promoting these programs in the Tier 2 Advice Letter directed in this decision. The PAs shall allocate no more than 10 percent of their accumulated unused administrative budgets to fund the Plan.⁷³

The Plan should focus on rapidly informing equity budget customers with the greatest resiliency needs as defined in Section 4.4.2 about the availability of SGIP incentives. The Plan should also inform such customers about how they can identify and apply for battery storage systems that are appropriate for resiliency. We direct the PAs to notify the Commission's DAC Advisory Group, and the service lists of R.12-11-005 and R.15-03-010 at least 10 days in advance of the workshop, if a workshop is held.

Requiring the PAs to develop and implement a customized Plan will increase awareness of the equity budget in eligible communities and help increase participation. In addition, co-promoting the equity budget and the

⁷² D.18-12-015, OP 9 at 160.

⁷³ D.11-09-015 at 57 stated that SGIP administrative budgets should provide the funds for any SGIP marketing and outreach efforts determined necessary.

SOMAH, SASH and DAC-SASH programs leverages limited resources and helps ensure that the Plan appropriately shapes messages for potential customers. It is also important that the SGIP PAs to take specific steps to rapidly reach equity budget customers with critical resiliency needs to ensure that such customers receive the information they need to utilize SGIP incentives.

In addition, it is reasonable for the ME&O Plan to include training of local residents in communities qualifying for equity budget incentives, as this will increase trust and therefore awareness about and use of the equity resiliency incentives. The SGIP PAs should assess this option and include it in the ME&O Plan as desired.

We do not at this time adopt Tesla's suggestion that the Commission establish a single, statewide PA for the equity budget and related Plan. Although there may be benefits to such an approach, establishing a new PA will take time and could disrupt awarding incentives in the next several years.

10. Equity Budget Developer Cap

Currently, SGIP rules limit any single developer to 20 percent of SGIP incentive funding for a given budget category in each statewide incentive step.⁷⁴ The cap was designed to ensure the incentives are spread among various developers, rather than giving a majority of the funding to one or a few well-known providers such as Tesla. The SGIP ACR asked parties to comment on whether the Commission should modify the developer cap as it applies to the equity budget.

⁷⁴ 2017 SGIP handbook at 30, available here: <https://www.cpuc.ca.gov/General.aspx?id=5935>.

10.1. Party Comments

A number of parties recommend eliminating the developer cap for the equity budget (Tesla, Sunrun, CALSSA, CESA, GRID/CHPC). These parties argue that the developer cap detracts from the equity budget's main goal of installing storage systems in qualifying communities and homes and that developers that seek to master the unique requirements of serving this market should be allowed to grow. GRID/CHPC state that installing storage in qualifying homes and communities is a niche market that only a small number of developers are currently pursuing. These parties argue that maintaining the developer cap for the equity budget could stall the equity budget program as well as market growth. Sunrun states that a developer cap inhibits a single developer from implementing community-level solutions in areas with constrained distribution systems, such as installing storage in clusters of housing. Tesla argues that a cap seems "strange" to customers and will inhibit those that decide to participate but then discover that a developer cannot install a system because of the cap.⁷⁵

SCE argues that the Commission should retain the developer cap for the equity budget, stating that the lack of participation to date suggests that there are few developers that are interested in this customer segment.

10.2. Discussion

Eliminating the developer cap for the equity budget prioritizes the Commission's goal for this budget set-aside, which is to facilitate access to SGIP incentives for qualifying low-income customers so they receive the benefits of installing residential storage systems. Maintaining the current equity budget

⁷⁵ Tesla, "Comments on SGIP ACR," May 30, 2019 at 9.

developer cap could inhibit the key objective of this decision, which is to eliminate barriers and rapidly increase participation in the equity budget. We eliminate the developer cap for the equity budget.

11. Equity Resiliency Budget

Section 379.6(a)(2) extended the authority of the Commission to authorize annual collections from IOU ratepayers for SGIP for the years 2020-2024 at a rate not more than double the amount authorized for the 2008 calendar year, or \$166 million per year.⁷⁶ If approved at the maximum level, SGIP collections would total \$830 million over five years. SB 700 also directs the Commission to provide repayment to ratepayers of any unallocated SGIP funds remaining as of January 1, 2026.

D.16-06-055 and D.17-04-017 established SGIP funding allocations across technologies and customer sectors and D.17-10-004 set-aside 25 percent of non-residential and residential storage funds for equity budget purposes.⁷⁷ Eighty percent of the total SGIP budget for 2017-2019 was allocated for storage technologies and 20 percent for generation technologies. Within the storage budget, 13 percent was allocated for residential systems smaller than 10 kilowatts (kW),⁷⁸ and of this, 25 percent was reserved for the residential equity budget. 87 percent of the storage budget was allocated for non-residential storage systems (and for residential systems over 10 kW), and of this, 25 percent was reserved for the non-residential storage equity budget. As a result, the equity

⁷⁶ Per D.17-04-017 at 2, an amount equivalent to double the 2008 SGIP funding level is \$166 million.

⁷⁷ D.16-06-055 and D.17-04-017 allow for the PAs to request to amend the residential storage and renewable generation budgets via advice letter.

⁷⁸ This is a combination of 15 percent approved in D.16-06-055 and 10 percent approved in D.17-04-017 to implement Assembly Bill (AB) 1637.

residential and equity non-residential storage budgets currently comprise three and 17 percent of the total SGIP budget, respectively (see Figure 1).⁷⁹

Figure 1: SGIP Budget Allocations 2017-2019

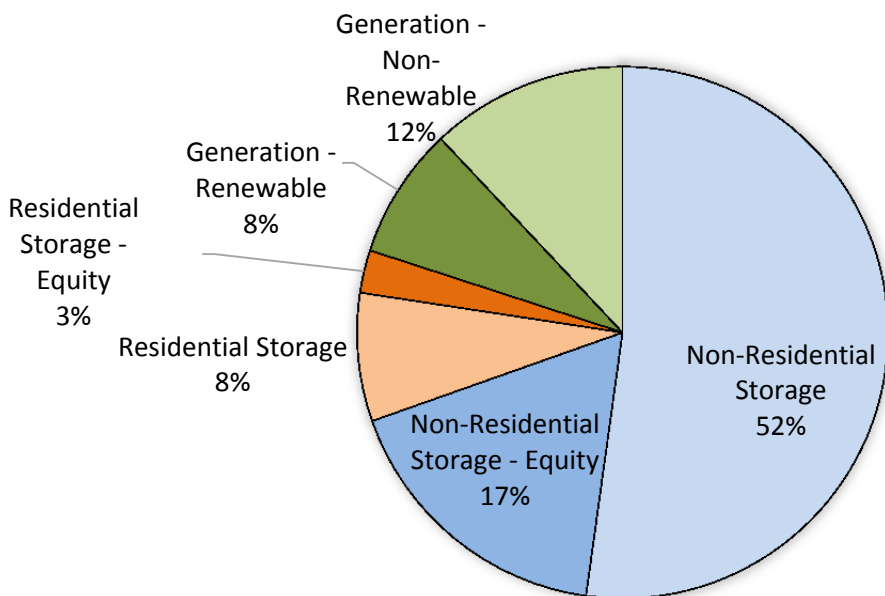


Table 6 summarizes authorized and remaining SGIP funds as of July 2019.⁸⁰ Per D.09-12-047, accumulated unused funds are carried over from year to year. As of July 2019, the program had approximately \$400.7 million in accumulated unused incentive funds, including 2019 collections, and \$70.3 million in accumulated unused administrative funds. Attachment B provides a summary of accumulated unused funds by PA as of the same date.

⁷⁹ SGIP ACR, April 15, 2019 at 6.

⁸⁰ See SGIP ACR at 5 for a complete overview of the source of accumulated unused SGIP funds.

Table 6: Accumulated Unused Incentive Funds⁸¹

Category	Authorized	Remaining
Generation	\$124,323,340	\$106,760,301
Non-Residential Storage	\$351,668,504	\$220,818,321
Residential Storage	\$48,874,356	\$3,086,504
Non-Res Storage Equity	\$65,373,787	\$ 62,852,387
Residential Storage Equity	\$7,263,754	\$7,231,691
Total	\$597,113,860	\$400,749,204

Table 7: Accumulated Unused Administrative Funds⁸²

Administrative and M&EO Budget	Authorized	Remaining
PG&E	\$33,907,102	\$28,397,784
SCE	\$36,932,832	\$31,589,564
CSE	\$6,870,346	\$2,844,824
SoCalGas	\$8,871,329	\$7,466,010
Total	\$86,581,609	\$70,298,181

The SGIP ACR requested party input on equity budget funding levels. It also requested party comment on accumulated unused SGIP incentive and administrative funds and for input on new SGIP funds that the Commission will

⁸¹ Total available funds in each budget category were derived from the Program Level Budget Summary on SelfGenCA.com (https://www.selfgenca.com/budget_public/program_level_summary/statewide) by subtracting the statewide "Total Allocated Funds" from "Total Budget" (accessed July 22, 2019).

⁸² Total available funds in each budget category were derived from the Program Level Budget Summary on SelfGenCA.com (https://www.selfgenca.com/budget_public/program_level_summary/statewide) by subtracting the statewide "Total Allocated Funds" from "Total Budget" (accessed July 22, 2019).

authorize to be collected during the 2020 to 2024 period pursuant to Section 379.6(a)(2).

This section modifies allocation of the approximately \$400.7 million in accumulated unused SGIP incentive funds remaining as of July 2019 by approving a new \$100 million equity resiliency budget for projects limited to customers with critical resiliency needs and HFTD SASH/DAC-SASH customers. This decision only addresses the disposition of SGIP funds accumulated as of 2017 – 2019 that remain unused. A subsequent decision in this rulemaking will authorize new SGIP collection levels and budget allocations for the 2020 to 2024 period.

11.1. Party Comments

Most parties recommend that the Commission carry over all of the remaining authorized SGIP funds, stating that storage continues to be valuable to the Commission, is needed to integrate large amounts of renewable energy onto the grid and that the California storage market is far from transformed. Cal Advocates and PG&E recommend that the Commission return all remaining previously authorized funds to ratepayers, stating that reducing overall program costs will help keep customer electricity rates affordable.

Parties generally recommend maintaining the equity budget at approximately its current level. GRID/CHPC recommend that the Commission increase the residential portion of the equity budget and permit developers to access non-residential storage equity budget funds if residential equity budget funds are depleted, but not the reverse. GRID/CHPC state that the newly available \$90 million in annual SOMAH funding and the DAC-SASH annual budget of \$10 million could dramatically increase demand for the SGIP equity budget.

Regarding the current SGIP generation technology budget, several parties propose reducing this budget because non-renewable generation technologies become ineligible for SGIP incentives on January 1, 2020. Other parties such as JFCP and CCDC propose that the Commission increase the budget for renewable generation technologies. These parties and CSE recommend that the Commission modify SGIP program requirements for renewable technologies and increase the incentive levels in order to drive an increase in incentive applications in this area.

11.2. Discussion

We approve carry over of the funds that remain as of January 1, 2020 of the approximately \$400.7 million in accumulated unused SGIP incentive funds and \$70.3 million in accumulated unused SGIP administrative funds for use during the 2020 to 2025 period. We also establish a new \$100 million incentive budget set-aside for equity budget customers with critical resiliency needs and those participating in the SASH or DAC-SASH programs with a portion of the accumulated unused funds. PAs shall transfer \$100 million from the accumulated unused generation budget to the new equity resiliency budget, using the following allocation across the utilities:

Table 8: Funding Sources for Equity/Resiliency Program Budget

Program Administrator	Percent⁸³	Budget (in millions)
PG&E	44	\$44
SCE	34	\$33
CSE	13	\$13
SoCalGas	9	\$9

⁸³ D.06-01-024 at 7, Table 2, first adopted these PA contribution ratios for the CSI; D.06-12-003 at 32-33 adopted them for the SGIP.

Total	100	\$100
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The 2017 and 2018 wildfires and resulting increases in the expected frequency of PSPS events has, at least in the short term, altered the landscape of customers' storage needs. We believe that SGIP incentives can be utilized to provide the additional resiliency benefit of backup power to eligible customers as approved in Section 4.4.2.

Pursuant to D.09-12-047, accumulated unused SGIP funds are carried over from year to year.⁸⁴ Approval of a \$100 million equity resiliency budget in this decision is an appropriate use of accumulated unused funds. Our adopted approach reflects the value we place on directing benefits of the equity resiliency budget to vulnerable customers and customers pairing with on-site solar generation.

It is appropriate that this decision reduces the existing generation technology budget to provide funds for the new equity resiliency budget. As noted by parties, applications for SGIP generation incentives have declined dramatically since the Commission in D.16-06-055 required increasing levels of renewable natural gas to fuel SGIP generation projects.⁸⁵ In addition, Section 379.6(m) prohibits use of SGIP incentives for non-renewable generation technologies as of January 1, 2020. However, we do not modify program

⁸⁴ D.09-12-047, "Decision Adopting Self-Generation Incentive Program Budget for 2010 and 2011," December 24, 2009, OP 4; D.11-12-030 confirmed continuation of carryover funds collected and unallocated as of January 1, 2016; D.14-12-033 approved new collections from 2015 to 2019 and did not modify the carryover guidelines adopted in D.09-12-047.

⁸⁵ D.16-06-055 required that, beginning with program year 2017, generation projects that use natural gas must also use a minimum of 10 percent biogas (renewable natural gas) to receive an SGIP incentive. The minimum biogas fuel requirement increased to 25 percent in 2018 and 50 percent in 2019.

requirements or incentive levels for the remaining generation technology budget at this time. The Commission will consider these issues and any modifications to the PAs' accumulated unused administrative budgets in a subsequent decision in this rulemaking. In addition, a subsequent decision in this rulemaking will implement ratepayer collections and budget allocations for funds authorized in Section 379.6(a)(2), including the option of increasing allocations for the new equity resiliency budget to \$100 annually.

We direct PAs to include updated budget allocations for accumulated unused SGIP funds reflecting the modifications approved herein in the Tier 2 advice letter directed in this decision. In addition, we direct the PAs to each submit a Tier 1 advice letter on January 31, 2020 that contains their final SGIP accounting data as of December 31, 2019 using the format directed in D.09-12-047, Appendix A.

The next section addresses the question of allocating some portion of current authorized SGIP funds towards a HPWH set-aside.

12. Equity Budget Heat Pump Water Heaters

HPWHs currently qualify as eligible SGIP technologies because these systems have the capacity to shift load from peak to off-peak periods and can provide California Independent Service Operator (CAISO)-integrated load drop and ramping services. The SGIP has not promoted HPWHs as an eligible technology, however, and has processed no applications for residential HPWHs to date.

The SGIP ACR asked parties whether the Commission should modify SGIP rules to increase applications for incentives for HPWH technologies. In addition, D.19-08-001, recently adopted by the Commission, directed the PAs to establish a thermal energy storage (TES) working group to develop proposals to

modify program definitions and rules to facilitate the compliance of TES systems with the GHG requirements adopted in the same decision.⁸⁶

12.1. Party Comments

SC/NRDC focus the majority of their comments in response to the SGIP ACR on the importance of growing the California market for HPWHs. SC/NRDC state that this technology is more affordable than electrochemical systems, has the potential to become widely available at affordable cost to low-income customers, and can provide GHG emission reductions and critical grid load-shift services. If deployed at scale and aggregated into Proxy Demand Resources, these parties state, HPWHs can be bid into the CAISO market and dispatched as needed. SC/NRDC state that although HPWH are an eligible SGIP technology, they not been a focus of developer applications due to the incompatibility of some existing SGIP requirements to TES systems such as HPWHs. They observe that the 2019 California Energy Commission Integrated Energy Policy Report stated that deploying HPWHs configured and operated to shift loads is “key” to meeting state building decarbonization goals.⁸⁷

SC/NRDC recommend several steps to stimulate growth in the California HPWH market, starting with an in-depth workshop on how the SGIP could support HPWHs, followed by a Commission staff proposal on the topic. SC/NRDC also recommend that the Commission transfer accumulated unused administrative and non-residential storage budgets into a set-aside for HPWHs and that the Commission approve a set-aside for HPWHs within the equity budget. The Joint CCAs support establishing a HPWH set-aside because of the

⁸⁶ D.19-08-001 at 76.

⁸⁷ SC/NRDC, “Comments on SGIP ACR,” May 30, 2019 at 3.

contribution this technology can make to California’s building decarbonization goals.

GRID/CHPC oppose a HPWH set-aside within the SGIP, stating that R.19-01-011, which addresses Section 921.1(b) requirements for building decarbonization pilot projects, will provide the necessary incentives. However, SC/NRDC observe that Sections 921.1(b) and Section 748.6 adopt a relatively small \$50 million annual budget for the period 2019 through 2023 for a building decarbonization program and allocate just 30 percent of these funds to new low-income housing decarbonization work. SC/NRDC state that Section 92.1(b) requires incentive levels adopted for building decarbonization efforts to “take into account the availability of existing incentives.”⁸⁸ Consequently, SC/NRDC recommend that the Commission maximize ratepayer benefits by approving budgets for workforce training on HPWHs and heat pump space heaters (HPSHs) in R.19-01-011 and adopting budgets for HPWH incentives in R.12-11-005.

12.2. Discussion

We direct the PAs to transfer \$4 million from the non-residential storage budget into a set-aside for HPWHs. To accomplish this, each PA shall transfer the following amounts to the new equity residential HPWH set-aside:

Table 9: Approved PA Contributions to Equity Residential HPWH Set-Aside

Program Administrator	Percent	Budget (in millions)
PG&E	44	\$1.76
SCE	34	\$1.36
CSE	13	\$0.52

⁸⁸ *Ibid.* at 19. See also Section 748.6.

SoCalGas	9	\$0.36
Total	100	\$4

We also direct Commission staff, in coordination with the SGIP PAs, to convene a workshop to discuss identifying and removing barriers to HPWH participating in SGIP within 120 days of issuance of this decision. Following the workshop Commission staff may issue a staff proposal on the topic or the Administrative Law Judge (ALJ) may issue a ruling with additional questions for comment on the topic.

SC/NRDC is encouraged to assist staff in planning the HPWH workshop, which should seek to address the priority questions raised by these parties in their comments including:

- Achieving market transformation of HPWHs;
- HPWH incentive design;
- Administration of SGIP incentives;
- Achieving equity in HPWH deployment;
- Ensuring load shifting;
- Future allocation of SGIP incentives; and,
- Coordination with other Commission programs.

The workshop shall be noticed to the service lists of R.19-01-011 and R.15-03-010, which address increasing affordable energy options for SVJ DACs, including through pilots promoting the full electrification of homes, and R.13-11-005, which, in D.19-08-009 modified the energy efficiency three-prong

test related to fuel substitution, which may impact the availability of energy efficiency incentives for HPWHs.⁸⁹

We are interested in the opportunities that HPWHs may provide for increased participation of equity budget customers in the SGIP and the related provision of grid services and bill reduction benefits because HPWHs are lower cost than most residential battery technologies. It appears possible that HPWHs may have the “potential to thrive” in future years without rebates.⁹⁰ In addition, as a replacement for natural gas and electric resistance water heaters, HPWHs appear central to achieving California’s 2045 building decarbonization goals.⁹¹ Establishing a HPWH set-aside within the SGIP equity budget and exploring additional SGIP program modifications to increase market growth of this technology signals Commission interest in this technology for the multiple services and benefits it may provide.

⁸⁹ D.19-08-009, “Decision Modifying the Energy Efficiency Three-Prong Test Related to Fuel Substitution,” adopted August 1, 2019.

⁹⁰ The Commission in D.16-06-055 adopted three co-equal goals for the SGIP program: (1) Environmental Benefits; (2) Grid Support; and, (3) Market Transformation. D.16-06-055 defined Market Transformation as a “key goal,” meaning that “SGIP should support technologies with the potential to thrive in future years without rebates.” D.16-06-055, Findings of Fact 1-3 and Conclusions of Law 1 – 3 and p. 11.

⁹¹ SC/NRDC, “Comments on SGIP ACR,” May 30, 2019 at 4, referring to SB 1477 (Stern, 2018), AB 3232 (Friedman, 2018) and SB 100 (Leon, 2018). SB 1477 requires the Commission to develop, in consultation with the CEC, two programs aimed at reducing greenhouse gas emissions associated with buildings. AB 3232 requires CEC to, by 2021, develop an assessment of the feasibility of reducing the GHG emissions of California’s buildings 40 percent below 1990 levels by 2030, working in consultation with the Commission and other state agencies. SB 100 states that it is California policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.

13. San Joaquin Valley Affordable Energy Pilot Projects

13.1. Background

D.18-12-015 approved building electrification pilot projects in 11 SJV DACs and stated that proceeding R.12-11-005 should consider modifying SGIP rules to support the pilot projects as recommended in an October 3, 2018 Assigned Commissioner’s Ruling (SJV ACR).⁹² The Commission initiated R.15-03-010 in response to Public Utilities Code Section 788.5, which directed the Commission to identify affordable energy options for SJV DACs, where many community residents lack access to natural gas and use propane and/or wood to meet their space, water heating and cooking needs.

The goals of the SJV DAC pilot projects are, first, to provide residents in the pilot host communities with cleaner, more affordable energy options and, second, to gather data to assess the economic feasibility of extending these options more broadly to the 180 SJV DACs identified as partially or fully lacking access to natural gas.⁹³ The SJV DAC pilots also aim to reduce household energy costs, increase health, safety and air quality, test approaches to efficiently implement interventions, and assess potential scalability.⁹⁴ All of the 11 pilot project communities are located in PG&E or SCE service territory.

D.18-12-015 approved up to \$56 million in funding for the pilot projects, primarily to electrify households currently lacking access to natural gas. In addition to this budget, the SJV ACR proposed that the SGIP program set-aside

⁹² D.18-12-015, at 41-42 and 115-118; *Assigned Commissioner’s Ruling Proposing Phase II Pilot Projects in Twelve Communities in the San Joaquin Valley and Noticing All-Party Meeting*, October 3, 2018.

⁹³ D.17-05-014 and D.18-08-019.

⁹⁴ D.18-12-015 at 10-11.

an additional \$10 million in SGIP equity budget funding for storage systems located in the SVJ pilot communities.⁹⁵ The SJV ACR reasoned that a dedicated SGIP budget for the pilot communities would improve the reliability of electric service and would strengthen community resiliency in the face of extended electric outages. To accomplish this, the SJV ACR proposed that the SGIP program:

- Fully subsidize residential storage systems in the SJV pilot communities up to a cost cap of \$11,979 per household, a level equal to average total SGIP residential system costs, estimated to provide for 829 systems;⁹⁶ and,
- Fully subsidize small, commercial-sized “Community Service Storage” at community locations such as schools, community centers, or public buildings, up to a cost cap of \$26,379 per system, the average total eligible system cost for commercial systems up to 10 kW, estimated to provide for nine - 18 systems.⁹⁷

13.2. Issues Before the Commission

This decision considers the following issues regarding modifications to the SGIP program to support the SJV pilot projects:

1. Should the Commission adopt the changes to the SGIP program for the SJV pilot communities as proposed in the SJV ACR by:

⁹⁵ SJV ACR, Table 8 at 43. The communities proposed in the ACR to receive storage projects were Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, and West Goshen. The SJV ACR did not propose that California City receive SGIP-funded storage projects but did not indicate a rationale for this. Monterey Park Tract was also not included in the list, as it currently does not receive any ratepayer funded natural gas service – its electric service provider is Turlock Irrigation District.

⁹⁶ The average SGIP incentive for residential storage projects that were paid out in step three of the SGIP residential storage budget was \$3,710. This value was calculated using the SGIP Public Export (accessed February 22, 2019).

⁹⁷ D.18-12-015 at 42.

- a. Adopting a \$10 million SJV pilot set-aside within the SGIP equity budget?
 - b. Fully subsidizing SJV pilot residential systems with a cost cap of \$11,979?
 - c. Fully subsidizing SJV pilot non-residential systems with a cost cap of \$26,379?
2. Should California City be eligible for any adopted SGIP SJV pilot budget, in addition to the ten communities identified in the SJV ACR?

14. SJV Affordable Energy Pilot Project SGIP Budget

The SGIP ACR asked parties if the Commission should adopt a \$10 million SJV pilot set-aside within the SGIP equity budget and whether doing so would advance SGIP's goals, including reducing GHGs and criteria pollutants, providing grid support, achieving market transformation, maximizing ratepayer value, and providing for an equitable distribution of costs and benefits across among customer classes.⁹⁸

This section approves a \$10 million SGIP set-aside to support the SJV pilots and an allocation of these funds between residential and non-residential systems. It directs PG&E and SCE to allocate up to \$5 million each from their existing non-residential equity budgets for this purpose and to make any budget remaining in the set-aside with four years of issuance of this decision available to any equity budget residential customer.

14.1. Party Comments

Most parties generally support the proposed SGIP modifications, but Cal Advocates and SoCalGas strongly oppose them. In support of the proposal, CESA and Sunrun argue that installing storage in the SJV DAC pilot

⁹⁸ SGIP ACR at 21; *See also* D.16-06-055, at 9-13.

communities will help displace wood and propane rather than grid-supplied electricity and thus would provide additional health benefits. Sunrun asserts that displacing on-site use of fossil fuels is particularly important in communities like the SJV pilot communities that will experience the worst effects of climate change even though they do not cause significant GHG emissions. SC/NRDC agree that the SJV DAC pilot projects offer an important opportunity to provide storage capability to low-income residents in an underserved region of California.

SC/NRDC argue that pairing storage with electrification, energy efficiency and community solar will provide useful learnings about both the customer experience and grid impact of deploying a suite of technologies in a single community. SC/NRDC propose full SGIP subsidies for storage for pilot communities receiving new electric equipment to replace propane or wood-burning equipment. GRID/CHPC observe that all-electric households are more vulnerable to outages and that the pilot should explore the effectiveness of storage to provide backup power.

In contrast, Cal Advocates argues that it is likely that the proposed modifications could harm pilot communities by increasing household energy bills. Cal Advocates observes that the pilot communities are located in a hot climate zone and as such are exempt from default onto time-of-use (TOU) rates. Further, Cal Advocates states that there are no available CARE TOU tariffs with peak to off-peak price differentials large enough to motivate customers to cycle an installed storage system in a way that reduces electricity bills or GHG emissions. Because systems are not 100 percent efficient, installing storage systems in households on tiered rates leads to increased household energy bills, states Cal Advocates.

Cal Advocates also argues that it is inappropriate to use SGIP funding to address perceived reliability concerns. They state that cycling a battery as required by the SGIP impairs its availability as a backup power supply for power outages. Further, Cal Advocates notes that there is no evidence that electric service reliability is particularly problematic in the SJV pilot communities and that “neither PG&E nor SCE have any records of formal or informal complaints about electric service reliability in any of the pilot communities.”⁹⁹

Cal Advocates recommends that the Commission require the SJV pilot households to participate in the SGIP program under the standard program rules and budget.

Most parties broadly concur that a \$10 million SGIP budget is reasonable to adopt for the purpose of investing in the SJV DAC pilot projects. However, SCE expresses concern that a set-aside could isolate funds depending on demand from the pilot communities. SCE recommends that the Commission adopt a budget not to exceed \$10 million and provide a method to make the funds available for other uses if there is insufficient demand.

GRID/CHPC recommend allocating the \$10 million from the existing non-residential equity budget, stating that the “existing residential equity budget cannot support an allocation of this magnitude, and the San Joaquin Valley generally does not overlap high fire threat zones, another area of need for residential storage.”¹⁰⁰

GRID/CHPC recommend that the Commission set aside the full \$10 million just for residential customers as “the SJV pilot communities are rural,

⁹⁹ *Ibid.* at 13.

¹⁰⁰ GRID/CHPC, “Comments on SGIP ACR” at 22.

with few commercial buildings, so it is unclear how useful or viable a community energy storage installation would be to such sparsely-populated communities.”¹⁰¹ SCE recommends that the Commission approve the SVJ ACR’s proposed residential/non-residential budget allocation.

14.2. Discussion

This decision approves a set-aside of up to \$10 million in incentives for the SJV pilot host communities and confirms the applicability to these communities of requirements adopted in D.19-08-001 designed to ensure that SGIP storage systems reduce GHG emissions. Our adopted approach will support participating SJV pilot households to shift their electricity load from peak to off-peak periods as required in Section 379.6(e). It will help ensure equitable access to SGIP benefits by low-income customers, as discussed in Section 379.6(a)(1) and may help address concerns about the reliability of electricity for participants as emphasized in Section 379.6(l) by providing a source of backup power during outages, particularly in community centers such as schools or public buildings. Using SGIP funds for incentives in SJV pilot communities does not violate the SGIP restriction on using incentives solely for backup power because all SGIP system and operational requirements continue to apply, including the cycling and GHG emission reduction requirements adopted in D.19-08-001.

Approving an SJV pilot set-aside supports the SJV pilot goals of reducing GHG and criteria air pollutants and could provide insights on the impacts of simultaneous deployment of multiple demand-side customer options in a single community. It is appropriate to reserve a dedicated \$10 million set-aside for the

¹⁰¹ *Ibid.* at 23.

SJV pilot communities for this purpose and to target equity budget investments to explore these potential impacts.

SCE's suggested approach of allocating a budget not to exceed \$10 million for the SJV pilot incentives is the best way to ensure that there is enough budget to support the pilot but that the funds are also available for alternative uses if there is insufficient demand. This approach is less administratively burdensome than allocating a smaller set-aside and increasing it later if necessary.

We concur with GRID/CHPC that the current non-residential storage equity budget is an appropriate source of funds for this \$10 million because nearly 10 times as many funds are available in this budget as in the residential budget.¹⁰²

Unlike GRID/CHPC, we believe that non-residential customers in the SJV pilot communities will want to install storage and serve as Community Service centers during grid outages or de-energization events. SJV pilot community members have actively participated in pilot project-related discussions thus far and Commission staff and community members have convened a number of meetings in local schools and other public buildings. Therefore, of the \$10 million set-aside for SVJ incentives, no more than \$9.76 million of this may be allocated for residential system incentives.¹⁰³ If applications for non-residential projects exceed \$240,000 within four years of issuance of this decision, the PAs may allocate an additional \$240,000 towards SJV pilot non-residential system incentives.

¹⁰² Attachment B, Table 11

¹⁰³ The SJV ACR at 43 estimated that between \$9.53 and \$9.76 million would be invested in 815 residential systems and \$240,000 to \$475,000 in nine to 18 non-residential systems.

Requiring all participating SJV pilot customers to adhere to the requirements adopted in D.19-08-001 should address Cal Advocate's concerns regarding potential increases in household electricity bills. D.19-08-001 adopted extensive new requirements intended to fulfill the requirements of Section 379.6(b)(1) that all storage systems receiving SGIP incentives reduce GHG emissions. To accomplish this, D.19-08-001 requires new residential customers to enroll in an "SGIP-approved" TOU rate if one is available. If an SGIP approved rate restricted to CARE customers is not available, D.19-08-001 requires CARE-eligible customers to enroll in any CARE TOU rate. In addition, to reduce the likelihood of bill increases for participating SJV households, we require CARE-eligible SJV pilot households that wish to use SGIP incentives to enroll in an SGIP-approved rate, if one is available, and, if not, in any CARE TOU rate, regardless of the date of submittal of a complete SGIP application.¹⁰⁴

Requiring adherence to the requirements of D.19-08-001 is also the best way to ensure that SJV pilot households that install SGIP storage systems reduce GHG emissions. This is because D.19-08-001 "aim[s] to ensure that 100 percent of new residential systems reduce GHG emissions."¹⁰⁵ D.19-08-001 also continues to require residential storage projects receiving SGIP incentives to cycle a minimum of 52 times per year, which ensures that such systems cannot be used only or primarily for backup purposes and that they provide grid services and GHG emission reductions, as discussed earlier in this decision. In addition, as noted by Sunrun, pilot households currently using propane or wood to meet

¹⁰⁴ D.19-08-001 at 77 requires "new" SGIP projects to enroll in rates and defines "new" projects as those submitting complete SGIP applications containing all required information on or after April 1, 2020.

¹⁰⁵ D.19-08-001 at 85.

their basic needs will experience significantly increased electric load by installing electric appliances; these households are likely to receive the most benefit from installing storage to help manage their increased electricity costs.

The SGIP budget to support the SJV DAC pilot projects approved in D.18-12-015 shall be no more than \$10 million. PG&E and SCE shall include a proposal to set-aside no less than \$5 million each from their accumulated unused non-residential equity budgets for up to five years, for this purpose. Unreserved funds remaining in the SJV pilot set-aside as of four years from issuance of this decision shall be reallocated to the residential equity budget at that time.

15. SVJ Pilot Incentive Design and Eligibility Criteria

The SGIP ACR asked parties to comment on whether the SGIP should adopt incentives to cover the full installed costs of residential and non-residential systems in SJV pilot host communities up to a project cost cap of \$11,979 and \$26,379 respectively.¹⁰⁶ The SGIP ACR also asked if the SJV pilot community of California City should be eligible for any approved incentives, in addition to the 10 communities identified in the SJV ACR.

15.1. Party Comments

Most parties broadly agree that SGIP should fully or nearly-fully subsidize the cost of residential storage systems in eligible households in the SJV pilot communities but that subsidies must not exceed the total eligible projects costs of the installed unit, as required in the SGIP handbook.¹⁰⁷ Most parties recommend increasing incentive levels to accomplish this, rather than adopting a fixed

¹⁰⁶ SGIP ACR, April 15, 2019 at 22-23.

¹⁰⁷ SGIP 2017 handbook at 27, available here <https://www.cpuc.ca.gov/General.aspx?id=5935>.

cost-cap per unit. PG&E recommends the Commission audit actual costs and use the information to set a cost cap per unit.

CALSSA did not comment on the proposed SJV pilot set-aside, but recommends in equity budget comments that the Commission set residential incentives at the “anticipated full cost” level, which it states should be equal to about 85 percent of the total installed median cost of residential systems added to the SGIP database over the last six months. CALSSA estimated that this would result in incentives of about \$0.80/Wh.¹⁰⁸ GRID/CHPC assert that the “cost of storage for low-income customers may be even higher than average or median costs reported in the residential SGIP program currently, because low-income customers are more likely to live in structures with challenging installation conditions.”¹⁰⁹ GRID/CHPC recommend authorizing an incentive of up to \$1.10/Wh total per household in the SJV pilot communities, observing that a \$10 million incentive budget at this level could fund the installation of storage systems in about half (680) of the households participating in the SJV pilot. As noted earlier, Tesla reports installed costs for its residential Powerwall systems of \$0.73/Wh.¹¹⁰

SCE supports fully subsidizing non-residential systems in the SJV pilot communities up to a \$26,379 cost cap. No other party commented on this issue. Most parties support including California City in the list of eligible SJV pilot communities, observing that D.18-12-015 approved home electrification pilot activities in this community and that no rationale was provided to exclude

¹⁰⁸ CALSSA, “Comments on SGIP ACR” at 10.

¹⁰⁹ GRID/CHPC, “Comments on SGIP ACR” at 4.

¹¹⁰ Tesla, “Comments on SGIP ACR” at 8.

California City. SC/NRDC propose that only households in the pilot communities that newly-install electric appliances to replace propane or wood-burning appliances should be eligible for the SGIP set-aside and full subsidies.

15.2. Discussion

There is limited information available to justify a particular incentive level or per unit cost cap for SJV pilot residential or non-residential systems. In the absence of evidence justifying a higher incentive level, it is most reasonable to adopt a reasonably conservative incentive level of \$0.85/Wh for the SJV pilot communities. Our intent is that our approved incentive level will fully or nearly fully subsidize both residential and non-residential storage systems in these communities. As already required in the SGIP handbook, approved project incentive levels must not exceed actual project costs. In addition, SJV pilot and all equity budget projects will benefit from the modifications to the SGIP handbook that we adopt in Section 5.2.2, which state that “vendors/developers shall not sell a storage system that receives incentives for a total price (before incentives) that is greater than the price they sell a comparable system that does not receive incentives,” as well as the additional steps we approve to explore implementing an SGIP price cap.

Including California City in the pilot communities eligible to access the SJV pilot set-aside will allow qualifying households and non-residential customers in this community to access the approved SJV pilot incentive levels. No party provided a rationale to exclude California City from accessing the approved incentive levels. Therefore, SGIP PAs shall offer the approved SJV pilot incentives in the communities of Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, West Goshen, and California City.

The Commission’s priority is ensuring access to SGIP incentives by SJV households currently using propane or wood to meet basic needs that participate in the SJV pilot – because these customers will increase their electric load by installing electric appliances and are likely to receive the most benefit from installing storage to help manage increased electricity costs – and non-residential customers providing critical community services access. Therefore, we limit eligibility for our approved residential SJV pilot incentives to households that participate in the pilot by replacing one or more propane or wood-burning appliances with electric appliances. Eligibility for the approved non-residential SJV pilot incentives is limited to non-residential customers providing critical facilities or infrastructure as defined in Section 4.4.2.

16. Updated Budgets Using Accumulated Unused Funds

This decision has directed a number of modifications to accumulated unused funds. Section 11.2 directed establishment of a \$100 million equity resiliency budget using accumulated unused generation technology funds. Section 12.2 directed establishment of a \$4 million equity HPWH set-aside using accumulated unused non-residential storage funds. Section 14.2 directed PG&E and SCE to establish a \$10 million SJV pilot set-aside by each contributing \$5 million of non-residential equity funds. Table 10 reflects these changes.

Table 10: Approved Budgets for Accumulated Unused Funds

Category	Approved Budgets
Generation	\$6,760,301
Non-Residential Storage	\$216,818,321
Residential Storage	\$3,086,504
Subtotal	\$226,665,126
Equity Budget	
Non-Residential Storage Equity	\$52,852,387

Residential Storage Equity	\$7,231,691
Residential HPWH Equity	\$4,000,000
Equity Resiliency	\$100,000,000
San Joaquin Valley Pilots	\$10,000,000
Subtotal	\$174,084,078
Subtotal (Incentive Budget)	\$400,749,204
Administrative / M&O	\$70,298,181
Total	\$471,047,385

As discussed in Section 11, this decision approves the carry over of any remainder as of January 1, 2020 of the approximately \$400.7 million in accumulated unused SGIP incentive funds and \$70.3 million in accumulated unused SGIP administrative funds for use during the 2020 to 2025 period. We direct PAs to include updated budget allocations for accumulated unused SGIP funds reflecting the modifications adopted herein in the Tier 2 advice letter directed in this decision. In addition, we direct the PAs to each submit a Tier 1 advice letter on January 31, 2020 that contains their final SGIP accounting data as of December 31, 2019 using the format directed in D.09-12-047, Appendix A.

17. Categorization

The June 9, 2014 *Assigned Commissioner's Scoping Memo* confirmed the categorization of R.12-11-005 as quasi-legislative. The July 26, 2017 *Assigned Commissioner's Ruling Amending Scope and Schedule on Proposed Changes to the Self-Generation Incentive Program and Extending Statutory Deadline* and the June 7, 2019 *Administrative Law Judge's Ruling Granting Motions for Party Status and Denying Motion to Revise Categorization of Proceeding from Quasi-legislative to Ratesetting* upheld this categorization. This decision ratifies those rulings.

18. Comments on Proposed Decision

The proposed decision of Commissioner Rechtschaffen in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on _____, and reply comments were filed on _____ by _____.

19. Assignment of Proceeding

Clifford Rechtschaffen is the assigned Commissioner and Cathleen A. Fogel is the assigned ALJ in this proceeding.

Findings of Fact

1. The Commission established the SGIP equity budget in D.17-10-004 but as of April 2019 no developer had applied for equity budget incentives and none had been approved.
2. The largest barrier inhibiting equity budget participation is the lack of upfront capital and financing available to low-income customers and, correspondingly, inadequate incentive levels.
3. Including California Indian County, as defined in 18 USC 1151, within the SGIP definition of a DAC supports statutory and Commission goals of ensuring broad access to SGIP funds for low-income and disadvantaged customers.
4. Non-Indian residences or businesses located on privately owned fee lands within the bounds of California Indian County should not be permitted to access SGIP equity budget funds as the occupants or owners of such lands typically are not members of the tribe with jurisdiction over the Indian County and may not be disadvantaged per se.
5. Expanding the definition of non-residential equity budget customers to include public agencies for which at least 50 percent of census tracts served are

DACs will increase participation in the SGIP equity budget but ensure that most of the benefits from these incentives continue to flow to DACs.

6. Allowing customers that are verified as meeting eligibility criteria for the SASH, DAC-SASH or SOMAH programs to simultaneously be approved as eligible for SGIP equity budget funds will accelerate subscriptions by allowing for streamlined project approval and easier developer identification of interested customers and will help avoid unnecessary delays to low-income customers.

7. The 2017 and 2018 California wildfires and resulting increases in the expected frequency of PSPS events has altered the landscape of customers' storage needs.

8. Section 379.6(b)(3) requires the Commission to ensure that energy storage systems that receive SGIP incentives reduce GHG emissions.

9. SGIP incentives can be utilized to support storage systems that provide the additional resiliency benefit of longer duration backup power but residential and non-residential storage projects using equity resiliency and equity budget incentives must cycle a minimum of 52 and 104 times per year respectively and must meet the GHG emission reduction requirements approved in D.19-08-001.

10. Identifying customers with critical resiliency needs for SGIP purposes enables the Commission to target limited equity budget incentive funds to the most vulnerable customers and those that provide critical facilities or infrastructure.

11. Limiting the inclusion of medical baseline customers or customers that have notified their utility of a life-threatening illness in the definition of residential customers with critical resiliency needs to customers living in a single family home subject to resale restrictions or in multifamily deed restricted

housing would be too restrictive and would excessively limit participation in the new equity resiliency budget.

12. Non-residential customers located in Tier 2 HFTDs may provide emergency response services and/or critical infrastructure to equity budget-eligible communities in Tier 3 HFTDs, particularly in sparsely populated counties.

13. A two-hour battery that is operated to provide customer, grid and GHG emission reduction benefits can fully charge in a relatively short period of time after a customer receives notice of a potential PSPS and be ready to operate in backup mode, as can longer duration batteries, since potential PSPS events are generally announced a day in advance.

14. Modifying the incentive step-down structure for equity budget projects with more than a two and four-hour discharge duration supports the use of SGIP incentives for resiliency purposes without over subsidizing larger projects that should be able to benefit from economies of scale.

15. With a \$0.50/Wh incentive, a 13.2 kWh, two-hour residential storage system would receive a total subsidy of about \$6,600 – half of the median \$13,500 cost of a residential system as identified in the SGIP project database, whereas the same system receiving a \$0.85/Wh incentive would receive a total subsidy of about \$11,200, or 83 percent of the system's total eligible cost.

16. With a \$0.35/Wh incentive, an average 13.5 kWh five kW Tesla Powerwall system that costs about \$9800 would receive a total subsidy of about \$4,725, whereas a \$0.85/Wh incentive would fully subsidize the system.

17. Providing an equity resiliency incentive of \$0.85/Wh for equity budget customers with critical resiliency needs increases the accessibility of SGIP

incentives for the most vulnerable customers and for those providing critical facilities or infrastructure while not over-subsidizing the system.

18. Providing an equity resiliency incentive of \$0.85/Wh for HFTD SASH/DAC-SASH customers increases the accessibility of SGIP incentives for these customers and allows them greater access to resiliency benefits because correctly configured storage-plus-solar system can provide multi-day, multi-hour backup electricity for critical loads.

19. Providing an equity resiliency incentive of \$0.85/Wh for equity budget customers with critical resiliency needs and HFTD SASH/DAC-SASH customers addresses the key barrier of lack of access to capital and financing by low-income and disadvantaged customers.

20. Providing incentives of \$0.85/Wh for eligible SJV pilot customers addresses the barrier of lack of access to financing and capital, allows the pilot to assess the impacts of deploying multiple demand side technologies in a clustered location, is consistent with the SGIP's environmental and grid services goals, and supports the SJV pilot objectives, including proving affordable energy options and assessing the feasibility of scaling such options to all SJV DACs.

21. Providing incentives of \$0.65/Wh for equity budget customers other than those eligible for the equity resiliency or SJV pilot incentives increases the benefits provided by equity budget incentives, and, for customers participating in the SOMAH program, encourages the installation of storage paired with solar generation.

22. If developers or vendors do not pass on to customers the cost savings enabled by SGIP equity budget incentives it would undermine the intent of the Commission for these incentives, which is to reduce the customer costs of installing storage systems that provide customer and grid benefits, stimulate

increased customer demand, and, in turn over time lower energy storage manufacturing, installation, and operation costs.

23. In Resolution 4396-E, the Commission adopted a soft cap on the price of a solar PV system that receives CSI incentives to protect the interests of consumers, based the cap on publicly available CSI cost data, and allowed costs to exceed the cap if necessary, and the customer signed a high cost justification.

24. The Commission has considerable public data on SGIP system costs and is interested in exploring a similar soft cap option for the SGIP equity budget to that adopted for the CSI program.

25. Eliminating the current equity budget incentive step-up structure will ensure that developers do not delay initiating equity budget projects while they wait for incentive levels to rise.

26. De-linking the equity budget from step three of the general storage incentives, as adopted in D.17-10-004, will eliminate unnecessary barriers to participation in the equity budget in PG&E service territory.

27. Energy storage system installation practices must comply with applicable AHJ code or permitting requirements and the California Electrical Code and, for storage systems larger than 20 kW, must also comply with California Fire Code Section 608 on installation of Stationary Storage Battery Systems.

28. The Commission has *Safety Best Practices for the Installation of Energy Storage* guidelines, which are available on the Commission website.

29. SGIP-eligible technologies, including equipment used for islanding purposes, are required to be certified for safety by a NRTL.

30. The IOUs' Rule 21 Tariffs define islanding as "a condition on distribution provider's distribution system in which one or more generating facilities deliver power to customers using a portion of distribution provider's distribution

system that is electrically isolated from the remainder of distribution provider's distribution system."

31. SGIP technologies discharging to the grid must comply with Rule 21 interconnection standards that require: (a) anti-islanding protection equipment to detect and disconnect a system from the grid during an outage; and, (b) that storage systems can safely re-connect to the grid following an outage.

32. Rule 21 requirements prevent backfeed into distribution lines that were meant to be de-energized.

33. Resiliency benefits from storage will vary depending on the design of a system, the duration of the PSPS event, whether the system is supplying all or only the most critical loads, whether there is on-site solar generation tied to the system, and other factors.

34. To maximize benefits, storage systems intended for resiliency purposes must be able to island and operate when the distribution system is experiencing an outage.

35. The safe operation of a storage system in island mode when installed in a building is beyond the scope of Rule 21 and is overseen by AHJs.

36. Adopting new information submittal requirements for developers applying for equity budget incentives for resiliency purposes will ensure that customers that install SGIP projects with the expectation that they will provide such services are basing this on accurate information.

37. Utility Rule 21 interconnection tariffs and the SGIP rules are adequate to address the safety risks posed by the installation of energy storage systems for resiliency purposes.

38. Approximately 43 percent of California's low-income population lives in multifamily housing.

39. Historical electrical usage information is now available for all IOU multifamily buildings because PG&E, SCE and SDG&E have implemented processes in response to AB 802 to enable property owners to determine their building's aggregated historical energy usage.

40. PG&E, SCE, SDG&E and the SOMAH PA are developing automated processes by which the SOMAH PA and SOMAH applicants can determine the energy usage of multifamily tenant and common area loads for participating properties.

41. Updating system-sizing requirements for multifamily housing to improve procedures for accessing and using a property's historical electrical usage will help remove barriers to multifamily building participation in the SGIP.

42. Modifying the SGIP handbook's eligibility requirements section to include systems that interconnect to the local electric utility's distribution system under the requirements of the VNEM tariff will help remove barriers to multifamily building participation in the SGIP.

43. Allowing customers to use a number of sources of incentives or financing for equity budget projects could accelerate low-income customer participation in the SGIP equity budget but is appropriate only if the total subsidy does not exceed a project's total installed cost.

44. Requiring the SGIP PAs to develop and implement a customized equity budget ME&O Plan will increase awareness of the equity budget amongst eligible communities and will support their increased participation.

45. Requiring the SGIP PAs to rapidly inform customers with critical resiliency needs about equity resiliency incentives prioritizes outreach to the most vulnerable customers.

46. Requiring SGIP PAs to co-promote equity, equity resiliency and SOMAH, SASH and DAC-SASH incentives leverages limited resources and helps appropriately shape messages for potential customers.

47. Authorizing SGIP PAs to train local residents to educate equity budget community members about incentives and the services provided by storage could increase trust, awareness and participation.

48. Eliminating the developer cap for the equity budget prioritizes the Commission's goal for this budget set-aside, which is to facilitate access to SGIP incentives for qualifying low-income customers so they receive the benefits of installing residential storage systems.

49. As of July 2019, SGIP PAs had \$400.7 million in available incentive funds, including 2019 collections, and \$72.3 million in administrative funds.

50. Pursuant to D.09-12-047, accumulated unused SGIP funds are carried over from year to year.

51. Applications for SGIP generation incentives have declined since the Commission in D.16-06-055 required steadily increasing levels of renewable natural gas to fuel SGIP generation projects. Section 379.6(m) prohibits use of SGIP incentives for non-renewable generation technologies as of January 1, 2020.

52. Because they are lower cost than most residential battery technologies, HPWHs may provide an affordable method for low-income customers to experience bill savings and provide needed grid services as compared to electrochemical batteries.

53. Establishing an initial HPWH set-aside within the SGIP equity residential budget and exploring additional SGIP program modifications to increase market growth of this technology signals Commission interest in this technology for the multiple services and benefits it may provide.

54. Adopting a set-aside of up to \$10 million in incentives for the SJV pilot communities supports SJV pilot households to shift their electricity load from peak to off-peak periods as required in Section 379.6(e), helps ensure equitable access to SGIP benefits by low-income customers as required in Section 379.6(a)(1) and helps to increase the reliability of electricity for participants as emphasized in Section 379.6(l).

55. SJV pilot households currently using propane or wood to meet their basic energy needs will increase their electric load by installing electric appliances and are likely to receive the most benefit from installing storage to help manage their increased electricity costs.

56. Limiting SJV pilot non-residential incentives to facilities providing critical services or infrastructure ensures use of the incentives by customers providing the greatest benefit to communities.

57. Approving a set-aside of up to \$10 million in incentives for the SJV pilot communities supports the shared SJV pilot and SGIP goal of reducing GHG emissions and criteria air pollutants and will provide insights on the impacts of simultaneous deployment of multiple demand-side customer options in the same community.

58. Allocating up to \$10 million as a set-aside for SJV pilot incentives and returning any unreserved budget remaining in the set-aside to the general residential equity budget as of four years from issuance of this decision ensures that there will be enough budget to support the SJV pilot but that the funds are also available for alternative uses if there is insufficient demand.

59. The current non-residential storage equity budget is an appropriate funding source for a \$10 million SJV pilot set-aside.

60. Requiring adherence to the requirements of D.19-08-001 will ensure that SJV pilot households that install SGIP storage systems experience energy cost savings, reduce GHG emissions, and provide other grid services.

61. Requiring CARE-eligible SJV pilot households that wish to access SGIP incentives to enroll in an SGIP-approved rate, if one is available, or in any CARE TOU rate, if one is not, regardless of the date of submittal of the SGIP application, will maximize the likelihood that such households experience energy cost reductions.

62. No party provided a rationale to exclude California City from accessing the approved incentive levels for SJV pilot communities.

63. Including California City in the list of SJV pilot communities eligible to access the SJV pilot set-aside allows qualifying households and non-residential customers in this community to benefit from the increased SJV pilot incentives.

64. Approving increased equity budget incentive levels for SJV pilot households that currently use propane or wood to meet basic needs and that electrify one or more appliances as part of the SJV pilot and for non-residential pilot customers providing critical facilities or infrastructure targets the higher SJV pilot incentives where they will provide the greatest benefits.

Conclusions of Law

1. 18 USC 1151 defines the term “Indian County” as meaning (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the

limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

2. For SGIP purposes, "Indian County" should not include privately owned non-Indian in-holdings located within the exterior boundaries of a tribe's Indian County.

3. The Commission should define a privately held in-holding in California Indian County as non-Indian owned fee land located within the exterior boundaries of California Indian County, regardless of the use of the land; in the event of multiple owners, such land shall be considered Indian owned if at least one owner is a tribe or tribal member.

4. The Commission should modify the definition of non-residential equity budget customers adopted in D.17-10-004 to include public agencies for which at least 50 percent of census tracts served are DACs, but should clarify that such customers to have the burden of providing the information to demonstrate a facility's eligibility.

5. For SGIP purposes, the Commission should define residential customers with critical resiliency needs as customers that: (a) are located in a Tier 3 HFTD; and, (b) are one of the following: (i) eligible for the equity budget; (ii) a medical baseline customer; or (iii) a customer that has notified their utility of serious illness or condition that could become life-threatening if electricity is disconnected.

6. For SGIP purposes, the Commission should define non-residential customers as having critical resiliency needs if they are located in a Tier 2 or Tier 3 HFTD and provide critical facilities or infrastructure as defined in this decision for a community that is located in a Tier 3 HFTD and eligible for the equity budget.

7. For SGIP purposes, eligible non-residential critical resiliency needs customers should be police stations; fire stations; emergency response providers as defined in D.19-05-042; emergency operations centers; medical facilities including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities; public and private gas, electric, water, wastewater or flood control facilities; jails and prisons; locations designated by the IOUs to provide assistance during PSPS events; cooling centers designated by state or local governments; and, homeless shelters supported by federal, state, or local governments.

8. The Commission should establish an SGIP equity resiliency budget with incentives of \$0.85/Wh that is available for residential and non-residential customers with critical resiliency needs, as defined in this decision, and Tier 3 HFTD SASH/DAC-SASH customers.

9. The Commission should establish an SJV pilot set-aside of up to \$10 million that provides incentives of \$0.85/Wh that is available to customers located in Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, West Goshen, or California City that are either households that participate in the SJV pilot authorized in D.18-12-015 by replacing one or more propane or wood-burning appliances with electric appliances and/or non-residential customers in these locations that provide critical facilities or infrastructure as defined in Conclusions of Law 6 and 7.

10. The Commission should increase the equity budget incentive level to \$0.65/Wh for qualifying customers that do not have critical resiliency needs, are not Tier 3 HFTD SASH/DAC-SASH customers and are not eligible for the SJV pilot set-aside as defined in this decision.

11. The Commission should deter SGIP storage developers from increasing the price of a storage system to equity budget customers because SGIP incentives are available.

12. The Commission should direct the SGIP PAs to add the following statement to the SGIP handbook: “vendors/developers shall not sell a storage system that receives incentives for a total price (before incentives) that is greater than the price they sell a comparable system that does not receive incentives.”

13. The Commission should direct SGIP PAs to work with Commission staff to determine if it is feasible to implement a price cap on storage systems receiving SGIP equity budget incentives, if there should be any exceptions to such an approach, how to address longer duration batteries, and other issues about how to implement such a cap, and should authorize the PAs to file a proposal on this topic as appropriate via a Tier 2 advice letter.

14. The Commission should ensure that SGIP storage systems intended for resiliency purposes advance to “incentives reserved” status only if an AHJ has inspected and approved the system, and solar generation if present, for operation in island mode.

15. The Commission should eliminate the step-up equity budget incentive structure adopted in D.17-10-004 and adopt a fixed equity budget incentive level.

16. The Commission should modify the duration step-down incentive structure adopted in D.16-06-055 as it applies to equity budget projects such that storage with a discharge duration of zero to four hours receives 100 percent of the base rate and systems with a discharge duration of four to six hours receive 25 percent of the base rate.

17. The Commission should require all equity budget and equity resiliency projects to meet all SGIP GHG emission reduction, cycling and other system and

operational requirements as these ensure that storage systems receiving incentives will not be used only or primarily to provide backup power.

18. The Commission should direct PAs to modify the SGIP incentive application to require developers applying for the equity resiliency budget, and non-equity resiliency budget systems with longer than two hour duration to:

- (a) provide an estimate of how long a project's fully charged battery will provide electricity for the relevant facility average load during an outage;
- (b) indicate whether a project's critical loads can and will be isolated and, if so, provide an estimate of how long the project's fully charged battery will provide electricity critical uses during an outage; and,
- (c) attest to the truth of the information provided and that this information has been given to the customer before they sign a contract.

19. The Commission should direct PAs to ensure that equity resiliency projects and non-equity resiliency budget systems with a longer than two-hour duration demonstrate to the PAs that an AHJ has inspected and approved that the system can operate in island mode during an outage when submitting the incentive claim form.

20. The Commission should modify SGIP eligibility requirements to include systems that interconnect to the local electric utility's distribution system under the requirements of the VNEM tariff.

21. The Commission should direct SDG&E and the SGIP PAs to discuss the IOUs' AB 802 and SOMAH program building benchmarking processes with the SGIP TWG and interested electric municipal utilities and Customer Choice Aggregation entities to identify the best methods to apply these or similar tools to the SGIP.

22. The Commission should direct SGIP PAs to review and update, as needed, the SGIP's system-sizing requirements for multifamily housing based on a property's historical electrical usage to facilitate the participation of multifamily buildings in the SGIP.

23. The Commission should, for the equity budget, waive the SGIP handbook requirement that PAs must reduce SGIP incentives for projects that receive non-SGIP incentives funded by IOU ratepayers or non-IOUs by the full amount and 50 percent of the amount of the other incentive(s) respectively and instead direct SGIP PAs to reduce the SGIP incentive as needed so that the SGIP incentive and external funding combined do not exceed the total installed costs of the system.

24. The Commission should direct the PAs to develop a customized equity budget ME&O Plan that: (a) co-promotes SGIP equity budget incentives alongside SASH, DAC-SASH and SOMAH incentives; (b) prioritizes outreach methods to rapidly inform customers with critical resiliency needs about the availability of SGIP incentives and how they can identify and apply for battery storage systems that are appropriate for resiliency.

25. The Commission should authorize the PAs to include in the equity budget ME&O Plan the training of local residents in communities qualifying for equity budget incentives to educate their fellow residents about SGIP incentive and the services provided by storage systems.

26. The Commission should direct the SGIP PAs to adequately fund the equity budget ME&O Plan to accomplish its objectives, at a level not to exceed 10 percent of annual administrative expenses.

27. The Commission should eliminate the developer cap adopted in D.16-06-055 for the equity budget.

28. The Commission should direct the SGIP PAs to carry over accumulated unused SGIP incentive and administrative funds for use during the 2020-2025 period.

29. The Commission should direct the SGIP PAs to each submit a Tier 1 advice letter on January 31, 2020 that contains their final SGIP accounting data as of December 31, 2019 using the format indicated in D.09-12-047, Appendix A.

30. The Commission should establish a new \$100 million budget set-aside for equity budget customers with critical resiliency needs and HFTD SASH/DAC-SASH customers by directing the SGIP PAs to transfer \$100 million from the accumulated unused generation technology budget to a new equity resiliency budget.

31. The Commission should direct the SGIP PAs to transfer the following amounts of funds from each PA's accumulated unused generation technology budget to the new equity resiliency budget:

Program Administrator	Budget (in millions)
PG&E	\$44
SCE	\$33
CSE	\$13
SoCalGas	\$9
Total	\$100

32. The Commission should direct the PAs to establish a \$4 million equity HPWH set-aside budget by transferring the following amounts of funds from each PA's accumulated unused non-residential storage budget:

Program Administrator	Budget (in millions)
PG&E	\$1.76
SCE	\$1.36
CSE	\$0.52
SoCalGas	\$0.36
Total	\$4

33. The Commission should direct the SGIP PAs to include updated budget allocations for accumulated unused SGIP funds reflecting the budget modifications adopted herein in the Tier 2 advice letter due 90 days after issuance of this decision.

34. Commission staff should convene a workshop on identifying and removing barriers to HPWH participation in the SGIP within 120 days of issuance of this decision.

35. The Commission should establish an SGIP equity budget SJV set-aside not to exceed \$10 million for use by the 11 SVJ pilot communities approved in this decision.

36. The Commission should restrict eligibility to the SJV set-aside to households in the 11 pilot communities currently using propane or wood to meet their basic needs that install electric appliances as part of the pilot project and to facilities providing critical services or infrastructure.

37. The Commission should direct PG&E and SCE to each allocate \$5 million from their accumulated unused non-residential equity budgets for use by the 11 SVJ pilot communities approved in this decision.

38. The Commission should direct PG&E and SCE to reallocate any unreserved funds remaining in the SJV set-aside as of four years from issuance of this decision to the residential equity budget.

39. The Commission should approve no more than \$9.76 million of the \$10 million SJV set-aside for use towards SGIP incentives by qualifying residential SJV pilot customers.

40. The Commission should approve an initial budget of \$240,000 for SJV non-residential incentives and should authorize SCE and PG&E to allocate an additional \$240,000 in incentives for this purpose if there is additional demand.

41. The Commission should require CARE-eligible SJV pilot households that wish to access SGIP incentives to enroll in an SGIP-approved rate, if one is available, or in any CARE TOU rate if an SGIP-approved rate is not available, regardless of the date of submittal of the SGIP application.

42. The Commission should notify the service list of R.15-03-010 of this proposed decision.

O R D E R

IT IS ORDERED that:

1. The modifications to the Self-Generation Incentive Program contained in Attachment A are approved.

2. The modifications to the Self-Generation Incentive Program adopted in this decision are effective April 1, 2020.

3. Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas) and the Center for Sustainable Energy (CSE) are directed to allocate accumulated unused incentive funds to the following budget categories:

Program Administrator	Equity Resiliency Budget (in millions)	Equity Heat Pump Water Heater Budget (in millions)
PG&E	\$44	\$1.76
SCE	\$33	\$1.36
CSE	\$13	\$0.52
SoCalGas	\$9	\$0.36
Total	\$100	\$4

4. Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) are directed to allocate \$5 million from their accumulated unused non-residential equity storage budgets to a \$10 million set-aside for eligible San Joaquin Valley customers as approved in this decision that are located in Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, West Goshen, or California City.

5. Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas) and the Center for Sustainable Energy (CSE) (collectively program administrators) shall:

- a. Jointly submit a Tier 2 advice letter within 90 days of issuance of this decision proposing modifications to the Self-Generation Incentive Program handbook to implement the changes adopted in this decision;
- b. Include updated budget allocations for accumulated unused funds that reflect the modifications adopted in this decision in the Tier 2 advice letter directed in Ordering Paragraph (OP) 5(a);
- c. Each submit a Tier 1 advice letter on January 31, 2020 that contains their final SGIP accounting data as of December 31, 2019 using the format indicated in D.09-12-047;
- d. Discuss with the Self-Generation Incentive Program (SGIP) technical working group the whole-building benchmarking processes being used in the Solar on Multifamily Affordable Housing (SOMAH) program to identify the best methods to apply these or similar tools to the SGIP and include recommendations on this topic in the Tier 2 advice letter required in OP 5(a);
- e. Develop a customized equity budget ME&O Plan (Plan) that co-promotes equity budget incentives with the SOMAH, Single Family Affordable Solar Homes (SASH) and the SASH for Disadvantaged Communities (DAC-SASH) programs and that prioritizes outreach methods to rapidly inform customers with

- critical resiliency needs about the availability of SGIP incentives and how they can identify and apply for battery storage systems that are appropriate for resiliency, and include the Plan in the Tier 2 advice letter required in OP 5(a);
- f. Allocate a sufficient budget to accomplish the objectives of the Plan, not to exceed 10 percent of annual administrative expenditures; and,
 - g. Work with Commission staff to determine if it is feasible to implement a price cap on storage systems receiving SGIP equity budget incentives, if there should be any exceptions to such an approach, how to address longer duration batteries, and other issues about how to implement such a cap.
6. Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas) and the Center for Sustainable Energy (CSE) are authorized to submit a proposal for a Self-Generation Incentive Program price cap as outlined in Ordering Paragraph 5(g) in a Tier 2 advice letter within one year of issuance of this decision.
7. Commission staff should convene a workshop on identifying and removing barriers to HPWH participation in the SGIP as discussed in this decision within 120 days of issuance of this decision.
8. Decisions (D.) 17-10-004 and D.16-06-055 are modified as set forth in Attachment A.
9. The Commission's Process Office shall serve the proposed decision on the service list of Rulemaking 15-03-010.
10. Rulemaking 12-11-005 remains open.

This order is effective today.

Dated _____, at Los Angeles, California.

Attachment A**Self-Generation Incentive Program Modifications**Definitions:

- 1) A residential equity budget customer with critical resiliency needs is defined as any customer located in a Tier 3 high fire threat district (HFTD) that is:
 - a) Eligible for the equity budget; or,
 - b) Eligible for the medical baseline program as defined in D.86087, 80 CPUC 182; or,
 - c) A customer that has notified their utility of serious illness or condition that could become life-threatening if electricity is disconnected, as defined in D.12-03-054.

- 2) Non-residential customers eligible for the equity resiliency budget are defined as customers located in a Tier 2 or Tier 3 HFTD that provide critical facilities or critical infrastructure during a PSPS event to a community that is eligible for the equity budget and located in a Tier 3 HFTD, limited to the following:

Police stations; fire stations; emergency response providers as defined in D.19-05-042; emergency operations centers; medical facilities including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities; public and private gas, electric, water, wastewater or flood control facilities; jails and prisons; locations designated by the IOUs to provide assistance during PSPS events; cooling centers designated by state or local governments; and, homeless shelters supported by federal, state, or local governments.

- 3) Disadvantaged communities for SGIP purposes include all California Indian County as defined in 18 United States Code Section 1151, with the exception of privately held in-holdings, which are defined as non-Indian owned fee land located within the exterior boundaries of California Indian County; in the event of multiple owners, such land shall be considered Indian owned if at least one owner is a tribe or tribal member, regardless of the use of the land.

- 4) The definition of non-residential equity budget customers adopted is modified to include public agencies for which at least 50 percent of census

tracts served are DACs, but such customers have the burden of providing the information to demonstrate the facility's eligibility.

Eligibility

- 5) Customers approved as meeting the eligibility criteria for the Single Family Affordable Solar Homes program (SASH), the SASH for Disadvantaged Communities program (DAC-SASH), and the Solar on Multifamily Affordable Housing program (SOMAH) are deemed automatically eligible for SGIP equity budget incentives.
- 6) Eligibility for the equity resiliency budget is limited to residential and non-residential customers with critical resiliency needs and customers residing in Tier 3 high fire threat districts (HFTDs) that have incentives reserved in the SASH or DAC-SASH programs ("HFTD SASH/DAC-SASH customers").
- 7) Eligibility for San Joaquin Valley (SJV) budget is limited to customers located in Allensworth, Alpaugh, Cantua Creek, Ducor, Fairmead, Lanare, Le Grand, La Vina, Seville, West Goshen, and California City that are: (a) residential customers participating in the SJV pilot by replacing one or more propane or wood-burning appliances with electric appliances; or (b), a non-residential customer that provides critical facilities or critical infrastructure, as defined in this decision.

Incentives:

- 8) The equity budget incentive amounts are the following:
 - a. Eighty-five cents per watt-hour for:
 - i. Customers eligible for the equity resiliency budget;
 - ii. Customers eligible for the SJV incentive; and,
 - b. Sixty-five cents per watt-hour for all other equity budget customers.
- 9) For the equity budget, the duration step-down incentive structure is as follows:

Discharge Duration (hours)	Percent of Base Incentive
0-2	100
2-4	100
4-6	25
6-8	0
8+	0

Program Requirements:

- 10) Equity budget projects are exempt from the developer cap of 20 percent of SGIP incentive funding for a given budget category per statewide incentive step.
- 11) Any customer receiving an incentive reservation for an equity resiliency project or an equity budget project with a longer than two-hour discharge duration must:
- (a) provide an estimate of how long a project's fully charged battery will provide electricity for the relevant facility average load during an outage;
 - (b) indicate whether a project's critical loads can and will be isolated and, if so, provide an estimate of how long the project's fully charged battery will provide electricity critical uses during an outage;
 - (c) attest to the truth of the information provided and that this information has been given to the customer before they sign a contract; and,
 - (d) demonstrate that an AHJ has inspected and approved a system's islanding capabilities.
- 12) Requirements for storage system sizing for eligible multifamily housing is, where feasible, based on the whole building's historical usage.
- 13) SGIP interconnection requirements contained in Section 4.2.2 of the SGIP handbook are updated as follows:
- All systems receiving incentives under the SGIP that discharge electricity must be connected to the local

electric utility's distribution system and must be installed on the Host Customer's side of the electric utility meter. The interconnection, operation, and metering requirements for the systems shall be in accordance with the local electric utility rules for customer generating facility interconnections. Energy storage systems must also be configured to operate in parallel with the grid. SGIP eligibility includes systems that interconnect to the local electric utility's distribution system under the requirements of a virtual net metering tariff.

- 14) The existing SGIP handbook requirement that SGIP projects receiving other incentives funded 100 percent by IOU ratepayers will have their SGIP incentive reduced by the full amount of the other incentive and that SGIP projects receiving other incentives funded by non-IOU ratepayers will have their SGIP incentive reduced by 50% of the amount of the other incentive is waived for equity budget projects. Instead, for equity budget projects, the SGIP incentive will be reduced, as needed, so that the SGIP incentive and external funding combined do not exceed the total installed costs of the system.
- 15) Vendors/developers shall not sell a storage system that receives incentives for a total price (before incentives) that is greater than the price they sell a comparable system that does not receive incentives.
- 16) CARE-eligible SJV pilot households that wish to use SGIP incentives must enroll in an SGIP-approved rate, if one is available, and, if not, in any CARE TOU rate, regardless of the date of submittal of a complete SGIP application.
- 17) Residential and non-residential equity resiliency and equity budget storage projects must cycle a minimum of 52 and 104 times per year respectively and must meet the GHG emission reduction requirements approved in D.19-08-001.

(End of Attachment A)

Attachment B

Authorized and Remaining SGIP Incentive and Administrative Funds
as of July 31, 2019.

Table 11: Authorized and Remaining SGIP Incentive Funds per PA¹

Category	Authorized	Remaining
Generation	\$124,323,340	\$106,760,302
PG&E	\$56,063,203	\$49,206,277
SCE	\$40,388,556	\$33,163,644
CSE	\$17,287,342	\$15,970,942
SoCalGas	\$10,584,239	\$8,419,439
Non-Residential Storage	\$351,668,504	\$220,690,464
PG&E	\$145,467,010	\$101,891,801
SCE	\$125,080,309	\$72,586,647
CSE	\$49,485,218	\$29,722,308
SoCalGas	\$31,635,968	\$16,489,708
Residential Storage	\$48,874,357	\$2,880,459
PG&E	\$20,811,097	\$14,752
SCE	\$16,475,997	\$2,004,979
CSE	\$6,921,361	\$1,427
SoCalGas	\$4,665,901	\$859,302
Non-Res Storage Equity	\$65,373,787	\$62,852,387
PG&E	\$26,814,534	\$26,814,534
SCE	\$23,557,776	\$21,414,876
CSE	\$8,954,161	\$8,693,161
SoCalGas	\$6,047,315	\$5,929,815

¹ Source: SGIP Program Level Budget Summary, accessed July 31, 2019,
(https://www.selfgenca.com/budget_public/program_level_summary/statewide).

Residential Storage Equity	\$7,263,754	\$7,231,691
PG&E	\$2,979,393	\$2,979,393
SCE	\$2,617,531	\$2,585,467
CSE	\$994,907	\$994,907
SoCalGas	\$671,924	\$671,924
Total	\$597,503,742	\$400,415,303

Table 12: Authorized and Remaining Administrative Funds per PA²

Admin/M&E Budget	Total Authorized	Remaining
PG&E	\$33,907,102	\$28,397,784
SCE	\$36,932,832	\$31,589,564
CSE	\$6,870,346	\$2,844,824
SoCalGas	\$8,871,329	\$7,466,010
Total	\$86,581,609	\$70,298,181

(End of Attachment B)

² Source: SGIP PA Budget Details (internal only), selfgenca.com, accessed 7/31/2019.

Attachment C

List of Applicable Nationally Recognized Testing Laboratory Standards for Storage¹

- Lithium batteries are governed by UL 1642, where requirements are established to reduce the risk of fire or explosion;²
- Inverters, converters, controllers and interconnection system equipment for use with distributed energy resources are governed by UL 1741, IEEE 1547, and National Fire Protection Association (NFPA) 70 where these requirements cover among other things rapid shutdown requirements;³
- Energy storage systems or battery systems that are paired with PV or wind turbines are governed by UL 1973 to evaluate that the asset can safely withstand simulated abuse conditions;⁴
- The broader category for standalone energy storage, including electrochemical, chemical, mechanical, and thermal devices, are governed by UL 9540, which covers fire detection and suppression, among other things;⁵

¹ CESA, "Comments on SGIP ACR", May 30, 2019 at C-1. We have added the proposed standard NPFA 855 to this list.

² UL 1642 Section 1.3, available here:
https://standardscatalog.ul.com/standards/en/standard_1642_5.

³ *Ibid*, Section 1.6.

⁴ UL 1973 Section 1.4, available here:
https://standardscatalog.ul.com/standards/en/standard_1973_2.

⁵ *Establishing Safety of Energy Storage – an Overview of UL Safety Standards* at Slide 17, available here: www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=3067.

- For the installation of energy storage systems, the following relevant codes and standards are present:⁶
 - Fire and smoke detection, fire suppression, fire and smoke containment (NFPA 1, 12, 15, 101, 850, and 851);
 - Mitigation of generation of combustible gases or fluids (NFPA 1, 7, and IEEE 1635);
 - Electrical safety, emergency shutoff, working space, electrical connections for behind-the-meter storage (NFPA 70 and 70E); and,
 - Electrical safety, emergency shutoff, remote shutdown, working space, electrical connections for in-front-of-meter storage (IEEE C2 and NFPA 5000);

- Anchoring and protection from natural disasters (seismic, flood, etc.) and the elements (rain, snow, wind, etc.) are governed by International Electrotechnical Commission (IEC) 60529, IEEE 1375, UL 96A, International Finance Corporation (IFC) and NFPA 70 and 5000; and,

- Proposed Standard for the Installation of Stationary Energy Storage Systems- NFPA 855.⁷

(End of Attachment C)

⁶ *Energy Storage System Guide for Compliance with Safety Codes and Standards* report prepared by Pacific Northwest National Laboratory, and Sandia National Laboratories at Section 4.4., available here: <https://www.sandia.gov/ess-ssl/publications/SAND2016-5977R.pdf>.

⁷ See <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=855>.