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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

ASSIGNED COMMISSIONER'S RULING SEEKING COMMENT ON IMPLEMENTATION OF SENATE BILL 700 AND OTHER PROGRAM MODIFICATIONS

On June 9, 2017, I issued a Scoping Memo that identified the scope of this proceeding to include the ongoing review, evaluation, and consideration of modifications to the Self-Generation Incentive Program (SGIP) including any program modifications necessary to implement legislation and any program revisions that may improve the SGIP that are not required by statute.[1]

This ruling seeks party feedback on questions that will be used to guide implementation of Senate Bill (SB) 700 (Wiener, 2018)[2] and to consider other program modifications. SB 700 authorizes the California Public Utilities Commission (Commission) to extend annual collections for the SGIP for five additional years, from December 31, 2019 to December 31, 2024, and extends

[1] "Assigned Commissioner's Second Amended Ruling and Scoping Memo," June 9, 2017. The "Assigned Commissioner's Ruling Amending Scope and Schedule on Proposed Changes to the Self-Generation Incentive Program and Extending Statutory Period," filed on July 26, 2018 was limited to clarifying the proceeding schedule for consideration of greenhouse gas emission reduction operational requirements and did not otherwise alter scope of this proceeding.

[2] Stats. 2019, Ch. 839 (Wiener).

administration of the program for five additional years, from January 1, 2021 to January 1, 2026. This ruling solicits party input on the future direction of the SGIP program as it pertains to the following program design areas:

1. Overall collection levels for years 2020-2024;
2. Funding allocations among technology and customer sectors;
3. Incentive levels;
4. Incentive step-down structure;
5. Administrative budget;
6. Resiliency;
7. Proposals from the San Joaquin Valley proceeding;[3]
8. Grid support; and,
9. Thermal energy storage and coordination with the new building decarbonization rulemaking.

In addition to the program extension, SB 700 provides that 1) generation projects using nonrenewable fuel are not eligible for incentives after January 1, 2020 (Public Utilities (Pub. Util.) Code § 379.6(m)), and 2), that the Commission shall adopt requirements for energy storage systems to ensure that they reduce greenhouse gases (GHGs) (Pub. Util. Code § 379.6(b)(3)). The first provision codifies a Commission order from Decision (D.) 16-06-055; therefore, no further action is required to implement this provision. On December 31, 2018, I issued a separate ruling requesting party input on the second provision and do not seek further input here.[4]

[3] Decision (D.) 18-12-015 in Rulemaking R.15-03-010.

[4] Assigned Commissioner's Ruling Issuing Energy Division's Revised Self-Generation Incentive Program Greenhouse Gas Staff Proposal for Comments," December 31, 2018.

Despite this ruling's questions about resiliency, parties should assume that D.01-03-073's requirement that SGIP incentives are not available for projects that only provide back-up power will remain in place. Projects can provide a source of back-up power but must also operate on a regular basis to provide grid benefits and reduce GHG emissions.

Comments on this ruling are due 45 days from the date of this ruling, and reply comments are due 15 days thereafter. Parties are encouraged to work together to file joint comments by technology sector, if possible. Each party need not comment on all questions. Parties are requested to comment on the questions in the order they appear in this ruling. Comments are limited to 25 pages and replies to 10 pages.

1. Overall Collection Levels for Years 2020-2024

This section seeks party input on ratepayer collections. SB 700 extends the authority of the Commission to authorize annual collections from utility ratepayers for SGIP for years 2020-2024, at a rate not more than double the amount authorized for SGIP in the 2008 calendar year, or $166 million per year.[5] If approved at the maximum level, collections would total $830 million over five years.

In 2014, SB 861 (Stats. 2014, ch. 35) authorized the Commission to approve SGIP collections of up to $83 million per year for years 2014-2019. The Commission implemented SB 861 in D.14-12-033 and adopted the maximum annual budget of $83 million per year for SGIP for years 2014-2019, citing its agreement with party comments that "the program supports the goals of § 379.6 to increase the deployment of distributed generation and energy storage systems,

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

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."[6]

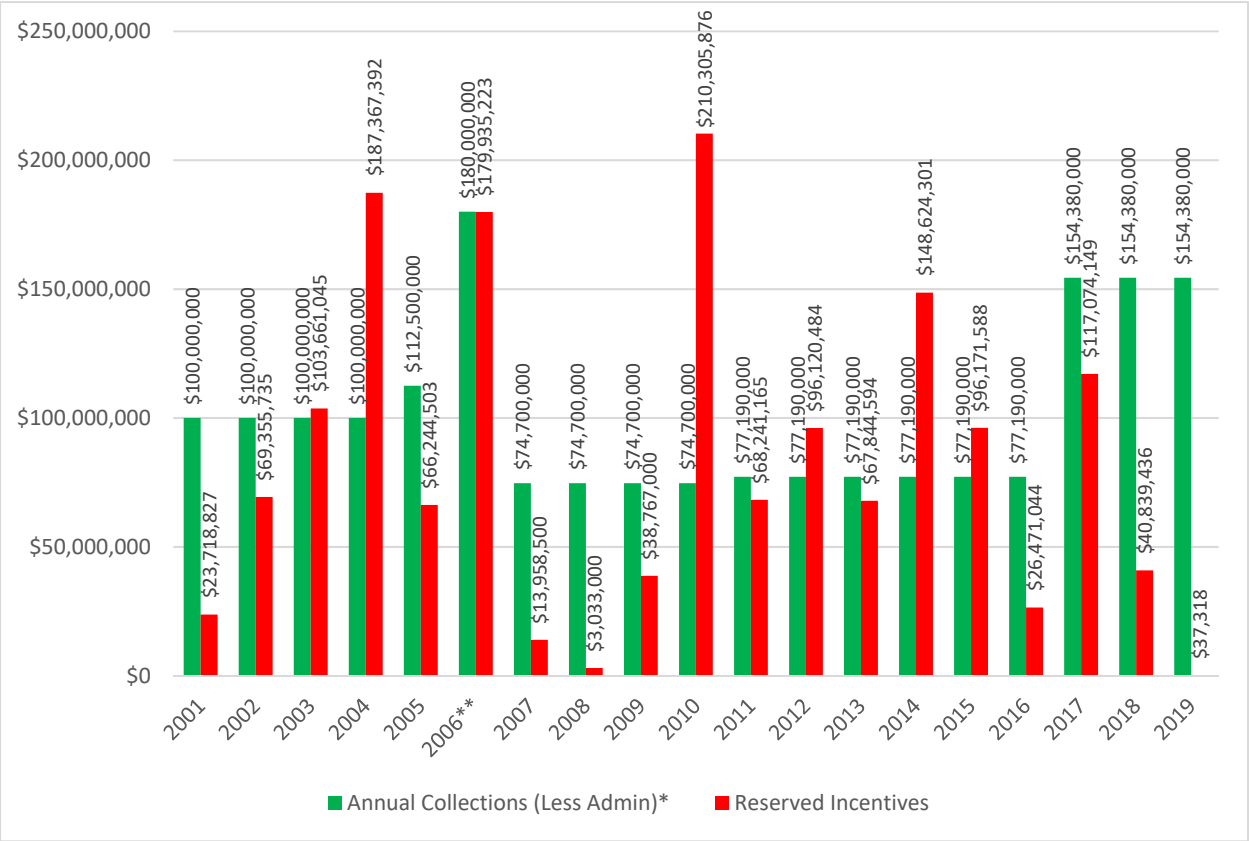
In 2017, Assembly Bill (AB) 1637 (Low) authorized the Commission to double SGIP funding from $83 to $166 million per year in years 2017-2019. The Commission implemented AB 1637 in D.17-04-017 and adopted the maximum budget of $166 million per year, citing the value it continues to see in SGIP, broad support from parties for the maximum funding level, and high customer demand for distributed resources participating in SGIP.

Figure 1 below shows annual and cumulative program funding and subscription levels for years 2001-2018. Pursuant to D.09-12-047, unused funds are carried over from year to year. The program currently has $414,788,311 in available funds, including 2019 collections.[7]

[6] D.14-12-033, at 5.

[7] Total available funds were derived from the Program Level Budget Summary on SelfGenCA.com (**https://www.selfgenca.com/budget/program_level_summary/**) by summing the "Available Funds" of the currently open steps with the "Total Budget" of subsequent unopened steps across all PAs and budget categories.

Figure 1: SGIP Annual Ratepayer Collections (Less Administrative Costs) and Reserved Incentives for Years 2001-2019[8]



Parties should comment on the following questions:

1. What criteria should the Commission use to determine ratepayer collection levels for years 2020-2024?
2. Based on your proposed criteria, should further collections be authorized for SGIP? If yes, at what level, and in which years?
3. Should the Commission authorize the carry-over of accumulated SGIP funds at the end of 2019 for use in

[8] Source: "Reserved Incentives" data is from the SGIP Weekly Statewide Report (1-14-19). "Annual Collections (Less Admin)" data is from approved values in D.01-03-073, D.04-12-045, D.06-01-024, D.06-12-033, D.08-01-029, D.09-01-013, D.09-12-047, D.11-12-030, D.14-12-033, and D.17-10-004. Figures presented assume a 20 percent administrative costs rate for 2001-2004 (D.01-03-073, Att. 1, at 28), a 10 percent rate for 2005-2010 (D.04-12-045, at 10), and a 7 percent rate for 2011-2019 (D.11-09-011, at 57). Collections of $425M in 2006 are decreased to account for partial transfer of SGIP funds to the California Solar Initiative pursuant to D.06-12-033.

subsequent years? If so, should the Commission reduce the annual collection in 2020 by the amount carried over?

2. Funding Allocation Among Technology and Customer Sectors; Modifications to Address Participation in Generation, Equity, and Non-Residential Budgets

This section seeks input on whether to continue SGIP's current budget allocation for funds collected between 2020 and 2024. In addition, it seeks to understand the drivers for the low participation in the generation budget, reduced participation in the non-residential storage budget, and the little to no participation in the storage equity budget and asks for input on how to address these drivers.

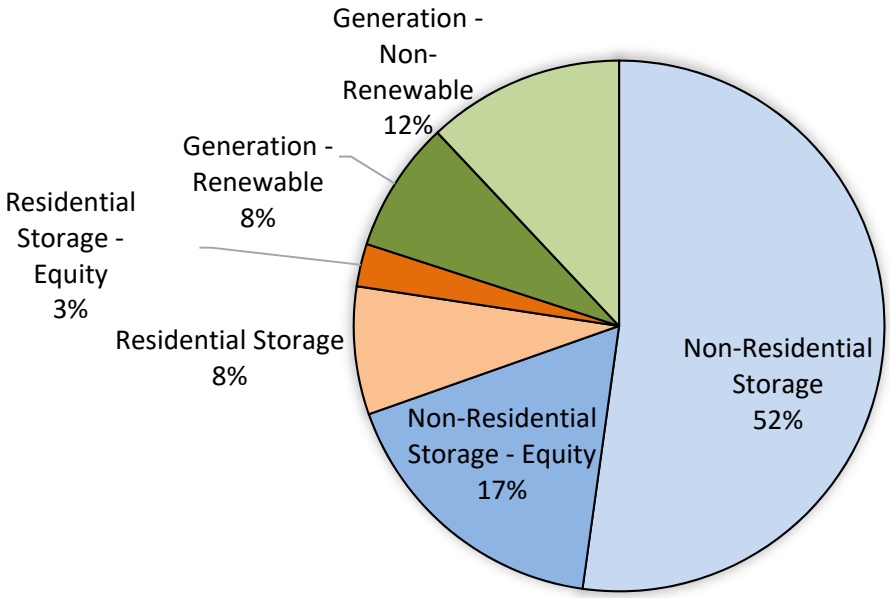
D.16-06-055 and D.17-04-017 established the current funding allocation across technologies and customer sectors:[9]

- 80 percent energy storage, 20 percent generation
  - Within the energy storage budget:
    - 13 percent residential systems under 10 kilowatts (kW)[10]
      - 25 percent reserved for equity budget
    - 87 percent non-residential systems and residential systems over 10 kW
      - 25 percent reserved for equity budget
  - Within the generation budget:
    - 40 percent reserved for renewable generation projects

[9] D.16-06-055 and D.17-04-017 allow for the PAs to seek to amend the residential storage and renewable generation carveouts by advice letter filings.

[10] Combination of 15 percent approved in D.16-06-055 and 10 percent approved for additional AB 1637 funds in D.17-04-017.

Figure 2: Current SGIP Budget Allocation



The following figure shows how much funding has been paid or reserved in each budget category in 2017 and 2018 as a percentage of total funding available to applications submitted between 2017 and 2020. As can be observed, the generation budget is almost untouched, the non-residential storage budget is undersubscribed, and the equity budget has not confirmed any reservations to date. The residential storage budget, however, is expected to run out of funds in 2019 if current subscription rates continue.

Figure 3: Subscription Rates by Budget Category, 2017-2018[11]

Budget Category	Reserved Incentives (2017-2018)	Total Budget (2017-2020)	Percentage of 2017-2020 Budget Used Through 2018
Generation	**$7,118,563**	**$124,012,426**	**6%**
2017	$7,075,363		
2018	$43,200		
Non-Residential Storage	**$113,104,680**	**$351,602,395**	**32%**
2017	$92,933,815		
2018	$20,170,866		
Residential Storage	**$37,727,660**	**$48,861,498**	**77%**
2017	$17,064,972		
2018	$20,625,370		
Non-Residential Storage Equity	**$0**	**$65,373,787**	**0%**
2017	$0		
2018	$0		
Residential Storage Equity	**$0**	**$7,263,754**	**0%**
2017	$0		
2018	$0		

2.1. Participation in Generation Projects; Budget Allocation Between Generation and Storage

This section asks about low participation rates in generation projects starting in 2017 and the allocation of budgets between generation and storage.

Since the onset of the renewable fuel blending requirement adopted in D.16-06-055, generation projects have submitted 10 applications (nine in 2017 and one in 2018) and received or reserved $7 million in incentives, well below the $124 million budget allocation for generation applications submitted between 2017 and 2020. There are currently $117 million available funds in the generation budget.

[11] Source: SGIP Weekly Statewide Report (1/14/19) and SGIP Program Level Budget Summary (1/19/19), SelfGenCA.com.

The *2016-17 SGIP Impact Evaluation* found that SGIP projects reduced GHG emissions by more than 300 thousand metric tons of carbon dioxide equivalent (CO2e) during 2016 and 2017 combined, and that most of these emissions reductions came from generation technologies, especially electric fuel cells and internal combustion engines.[12] Generation projects were also responsible for the majority of the program's demand reductions during the California Independent System Operator's (CAISO) peak hour. Electric-only fuel cells made up almost 50 percent of the SGIP CO2e impacts during the CAISO peak hour, followed by internal combustion engines and gas turbines.[13]

Parties are asked to comment on the following questions:

1. What are the main drivers for low participation in the generation budget beginning in 2017?
2. What program changes should the Commission consider, if any, to increase subscription in the generation budget, keeping in mind that SB 700 renders generation technologies using nonrenewable fuels ineligible for SGIP incentives starting in 2020 (*see* Pub. Util. Code § 379.6(m))?
3. Should the Commission modify the budget allocation between storage and generation projects for funds collected in 2020-2024? If so, what allocation do you propose, and why?

2.2. Reduced Participation in Non-Residential Storage Projects; Residential/Non-Residential Storage Budget Allocation

This section asks about the drivers of reduced participation in non-residential storage budgets and about program changes that could be made

[12] 2016-17 Self Generation Incentive Program Impact Evaluation, at ES-6 (report available at **http://cpuc.ca.gov/General.aspx?id=7890**).

[13] *Ibid.* at ES-4.

to address this. It also asks for input on the allocation of budgets between residential and non-residential storage budgets.

Thirteen percent of the total storage budget is reserved for residential applications; however, residential projects received or reserved 15 percent of actual spent storage funds in 2017 and 51 percent in 2018. The Center for Sustainable Energy (CSE) exhausted all five steps of its residential storage budget by April 2018 and recently filed an advice letter to request authorization to transfer funds from Step Five of its non-residential storage budget to Step Five of its residential budget. Southern California Gas Company (SoCalGas) is in Step Three and Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) are in Step Four of their residential storage budgets. Statewide, residential storage projects have received or reserved 77 percent of funds available to them between 2017 and 2020 (*see* Figure 3).

Statewide, non-residential projects have received or reserved 32 percent of funds available to them between 2017 and 2020 (*see* Figure 3). Funds paid to or reserved by non-residential storage projects dropped from approximately $90 million in 2017 to $20 million in 2018. PG&E has been in Step Two of its non-residential storage budget for over a year and a half and has over $22 million still available in that step.

This ruling seeks party comment on the following:

1. What were the main drivers for the reduced participation in the non-residential storage budget in 2018?
2. What program changes should the Commission consider, if any, to increase subscription in the non-residential storage budget?
3. Should the Commission modify the budget allocation between residential and non-residential storage projects for funds collected in 2020-2024? If so, what allocation do you

propose, and how does this allocation advance specific SGIP goals?

2.3. Lack of Participation in Storage Equity Budget; Storage Equity/General Budget Allocation

This section considers the lack of participation in the equity storage budget and requests input on possible program modifications to increase participation, better serve tribal reservations and/or modify the equity budget carve-out.

In D.17-10-004, the Commission reserved 25 percent of non-residential and residential storage funds for an "equity budget" that is reserved for projects that meet specific income-qualified criteria. The Commission set the incentive level for the equity budget equal to that in the general budget, but also adopted a mechanism to increase incentive rates for equity projects by five cents per watt hour ($0.05/Wh) after any rolling three-month period in which the equity budget confirmed zero reservations and the general budget confirmed at least five reservations, with an incentive cap at $0.50/Wh. The intent of the mechanism was to increase the incentive level if it proved too low to attract demand.

D.17-10-004 established the equity budget and adopted the incentive levels for all projects as shown in Figure 4. SCE opened its equity budget in January 2018, followed by SoCalGas in March and CSE in June 2018. Statewide, few to no equity reservations have been confirmed to date. SoCalGas has reached the maximum incentive for equity projects of $0.50/Wh, and SCE and CSE are currently at $0.45/Wh. PG&E's equity budget has not yet opened because the utility is still in Step Two of its non-residential storage budget. When PG&E's equity budget opens, incentives will be available at $0.35/Wh.

Figure 4: SGIP Equity Budget Incentive Structure[14]

Technology	Initial Incentive (D.17-10-004)	Current Incentive[15]
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

Parties are directed to comment on the following:

1. What were the main drivers for the lack of participation in the storage equity budget in 2018?
2. What program changes should the Commission consider, if any, to increase subscription 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. Are there some customers on tribal reservations that are not eligible for the storage equity budget under the current criteria? If so, should the Commission expand eligibility for the storage equity budget to all projects located on tribal reservations?[16]
5. Should the Commission modify the storage equity budget carveout for funds collected in 2020-2024? If so, what new carveout do you propose, and why?
6. Is a modification to the equity budget incentive structure warranted? If so, what do you recommend and why?

[14] D.17-10-004, p. 23-25.

[15] 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.

[16] Because they are often located in remote areas with low levels of industrial pollution and vehicle emissions, most reservations do not qualify as disadvantaged communities pursuant to D.17-10-004. However, tribal reservations may have poor electric service reliability due to remote locations, dispersed population, and historic neglect.

7. Are any modifications to the developer cap in relation to the equity budget warranted? If so, what do you recommend and why?

3. Incentive Levels

This section requests input on non-equity generation and storage budget incentive levels. In D.16-06-055, the Commission adopted the incentive levels shown in Figure 5. In approving these levels, the Commission considered the following factors with respect to each technology:

- The degree to which the technology supports program goals of reducing GHGs and criteria air pollutants, providing grid support, and achieving market transformation;
- The degree to which the technology requires support in order to be cost effective from the participant's perspective; and,
- How likely the incentive rate is to attract a healthy demand for incentives while avoiding a stampede.[17]

[17] D.16-06-055, Attachment A, at 23 and 27.

Figure 5: Initial and Current Incentive Levels Adopted in D.16-06-055[18]

Technology	Initial Incentive (D.16-06-055)	Current Incentive[19]
Generation ($/W)		
Wind	0.90	0.90
Waste heat to power	0.60	0.60
Pressure reduction turbine	0.60	0.60
ICE CHP	0.60	0.60
Microturbine CHP	0.60	0.60
Gas turbine CHP	0.60	0.60
Fuel cell CHP	0.60	0.60
Fuel cell electric only	0.60	0.60
Energy Storage ($/Wh)		
Non-residential	0.50	0.35-0.40
Non-residential + ITC	0.36	0.25-0.29
Residential	0.50	0.25-0.35

This ruling seeks party comments on the following questions, particularly as they pertain to non-equity budget categories experiencing low demand for SGIP incentives (generation and non-residential storage budgets):

1. Have one or more of the above factors changed for a specific SGIP technology such that a modification to the incentive level for that technology is warranted?
2. Is a change in incentive levels prudent for some other reason?

4. Incentive Step-Down Structure

This section seeks input on the SGIP incentive step-down structure. D.16-06-055 adopted a continuous funding system for SGIP projects that operates using steps, with the incentives reducing by ten cents ($0.10) for generation technologies and five cents ($0.05) for storage technologies at each incentive

[18] Source: D.16-06-055 and Program Metrics at SelfGenCA.com.

[19] 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.

step-down. D.16-06-055 mandated an equal division of the total SGIP funding budget across each step. This practice was continued by D.17-04-017 for the 2017 – 2019 renewable generation and storage budgets.

This ruling seeks party comment on the following:

1. Should the Commission adopt additional steps in the storage or generation budgets? If yes, how many steps should be adopted, and how should funds be distributed across steps?
2. Should the Commission continue stepping down storage incentive levels by $0.05 and generation incentive levels by $0.10? If not, what step-down values do you propose and why?
3. Should the Commission consider different stepped down incentive approaches for non-residential and residential generation or storage systems? If so, please describe and provide the rationale.

5. Administrative Budget

This section seeks input on accumulated unused SGIP administrative budgets and the appropriate authorization methods for changes to administrative budgets. Currently, seven percent of the SGIP budget for each program administrator (PA)[20] is set aside for program administration, which includes general administration and measurement and evaluation. Administrative funds collected annually through 2024 must cover administrative costs incurred through the end of the program, potentially seven years (18 months for installation plus five-year Performance Based Incentive term) past December 31, 2025, the date the last application will be accepted.

The table below shows the current SGIP administrative budget allocation across PAs, the estimated annual administrative expenditures averaged over the

[20] The SGIP PAs are PG&E, SCE, SoCalGas, and CSE (for SDG&E's territory).

past three years, and the estimated amount of unused funds accumulated in administrative budgets since the program's inception. The estimated amount of unused funds is based on collections and expenditures reported by the PAs to Energy Solutions[21] before January 23, 2019, but some expenditures may not yet be reported. Thus, actual values for available funds are likely lower.

Figure 6: PA Administrative Annual Collections, Annual Spend, and Unused Funds

PA	Annual Admin Collections for 2017-2019	Est. Annual Admin Spend (Averaged Over 2016-2018)[22]	Est. Unused Admin Funds Accumulated to Date[23]
PG&E	$5,040,000	$2,980,000	$28,397,784
SCE	$3,920,000	$2,330,000	$31,589,564
CSE	$1,540,000	$1,440,000	$3,987,013
SoCalGas	$1,120,000	$977,000	$8,871,329
Statewide	**$11,620,000**	**$7,727,000**	**$72,845,690**

PG&E and SCE rarely spend their full allocated budget, resulting in carryover administrative funds from year to year. At the time of this ruling, both PG&E and SCE have close to $30 million in their administrative budgets. Conversely, CSE and SoCalGas have expressed concern to Commission staff that they may exceed their annual seven percent administrative allocation since some administrative expenditures are fixed regardless of the amount of incentives processed. Since collections end in 2026, a seven percent annual administrative

[21] Energy Solutions is a third-party contractor that manages to SGIP database and public reporting of SGIP statistics. *See* SelfGenCA.com.

[22] Source: PA estimates provided to Energy Division staff by January 23, 2019.

[23] Source: "PA Budget Details (Internal Only)", SelfGenCA.com (1/23/19).

allocation for these PAs could be inadequate to cover administrative costs through 2032.

D.14-12-033 granted the PAs authorization to shift funding *from* administrative *to* incentive budgets via advice letter, with the caveat that sufficient funding must remain in the administrative budget to pay for any program evaluations or other reports required by the Commission or Energy Division.[24]

Parties, and specifically the PAs, are asked to comment on the following questions, keeping in mind that administrative funds collected through 2024 must cover administration costs incurred through 2032:

1. How should the Commission address the large existing balances in PG&E and SCE's administrative budgets? Should the Commission direct PG&E and SCE to transfer administrative funds to their incentive budgets, cover future administrative expenditures using the existing balances and lower future ratepayer collections accordingly, or a different option?
2. Should the Commission authorize the PAs to shift funding from incentive to administrative budgets via advice letter? If yes, please specify the criteria the Commission should use to evaluate the request.
3. What other modifications, if any, should the Commission implement to ensure CSE and SoCalGas collect sufficient funds to cover administrative costs through 2032 without unduly burdening ratepayers?

[24] D.14-12-033 at 6.

6. Resiliency

Resiliency in the face of wildfires and other climate-change-related impacts is increasingly a priority for the state of California and this Commission."[25] This ruling asks whether SGIP should add a focus on increasing resiliency to wildfires, the de-energization of electric lines due to high wildfire risk, or other risks. De-energization events may last several days or more.

Parties are asked to comment on the following:

1. What specific resiliency benefits, if any, can behind-the-meter (BTM) storage devices provide to customers and/or communities in the event of a wildfire, wildfire-related de-energization event, or other adverse event? In your response, please do the following relative to both a community, a residential customer or a non-residential customer:
    i. Describe the resiliency need the storage device can address, including the anticipated duration of the need;
    ii. Describe the resiliency benefit the storage device can provide, including the duration of the benefit;
        1. Please provide an example of an average residential customer load and the size storage device that would be required to provide the resiliency benefit described above.
    iii. Address who would benefit from the resiliency service; and,
    iv. Address whether the storage device would need to be part of a microgrid or have the ability to charge directly from onsite renewable generation to provide the

[25] The Commission's Strategic Directive on Resiliency regarding utility systems appears at 6 of the following document: http://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/Transparency/spi/Strategic_Directives_and_Governance_Policies_Adopted_August102017.pdf." Assure that utility systems are resilient and capable of recovering from adverse events such as accidents, natural disasters, and those related to cyber and physical security."

resiliency benefit, or, more generally, how resiliency benefits differ depending on these factors.

2. What specific resiliency benefits if any can on-site generation devices provide to customers and/or communities in the event of a wildfire, wildfire-related de-energization event, or other adverse event? In your response, please do the following:
   i. Describe the resiliency need the on-site generation device can address, including the anticipated duration of the need;
   ii. Describe the resiliency benefit the on-site generation device can provide, including the duration of the benefit;
   iii. Address who would benefit from the resiliency service;
   iv. Address whether the on-site generation device would need to be part of a microgrid or be connected to a storage device to provide the resiliency benefit, or, more generally, how resiliency benefits differ depending on these factors; and
   v. Address whether or not the use of storage to provide resiliency services during de-energization events introduces public safety risks, such as creating an alternative source of ignition for a wildfire. Include recommendations for mitigating any identified risks.
3. Should the Commission seek to promote SGIP projects that provide resiliency benefits to customers and/or communities facing risks of a wildfire, wildfire-related de-energization events, or other adverse event? If so, how?
4. Should the Commission adopt a dedicated incentive aimed at promoting SGIP technologies with resiliency benefits? If so, how should the Commission structure such an incentive, and why? What eligibility criteria would you suggest, and why?
5. More specifically, should the Commission adopt a "resiliency adder" to existing incentives for storage and/or

generation projects that provide resiliency benefits to customers and/or communities to help address wildfire, wildfire-related de-energization event, or other risks? If yes:

i. At what level should an adder be set (*e.g.*, a certain percentage above existing incentive levels)? Please provide a rationale for the level you propose.

ii. What are appropriate project eligibility criteria to receive the adder? Possible project qualifications could include: customers located in CPUC Fire Threat Map Tier Three zones,[26] High Priority Areas for Reducing Wildfire Risk to Communities identified by California Department of Forestry and Fire Protection (CalFIRE),[27] where power lines are not undergrounded, or on tribal lands; or, customers that provide critical services *(e.g.* first response agencies, hospitals, cooling centers, emergency shelters), or serve as a community center; or customers that are enrolled on a medical baseline rate; or other criteria.

iii. Should projects receiving the adder be required to demonstrate or attest that they will provide resiliency benefits? If yes, how can the Commission confirm that the storage is continually operated to provide these benefits?

iv. What conditions should the Commission impose to ensure that resiliency services provided during de-energization events do not undermine the intended benefits of the de-energization?

6. In Decision 16-06-055, the Commission reduced incentives for energy storage projects with a discharge duration longer than two hours.[28] While this assists in spreading

[26] *See* **https://ia.cpuc.ca.gov/firemap/**.

[27] *See* Community Wildfire Prevention & Mitigation Report (in response to Executive Order N-05-19), CalFIRE, February 22, 2019.

[28] D.16-06-055 at 28.

SGIP storage budgets across a greater number of systems, it disincentivize storage systems with discharge durations exceeding two hours. Should the Commission modify the existing SGIP incentive structure to facilitate storage projects with a discharge duration exceeding two hours? If so, please explain your reasoning and the modifications you propose.

7. San Joaquin Valley

In a recent decision in Rulemaking 15-03-010 approving pilot projects in eleven disadvantaged communities in the San Joaquin Valley (SJV), the Commission suggested consideration of certain SGIP rule changes to assist customers participating in the pilot projects.[29] D.18-12-015 stated that the SGIP proceeding should examine the impacts and details of the SGIP rule changes recommended in an October 3, 2018 Assigned Commissioner's Ruling (SJV ACR). The SJV ACR's proposed SGIP modifications include the following:

- A $10 million set-aside within SGIP's equity budget for the SJV pilot communities;[30]
- Fully subsidized BTM residential storage up to a cost cap of $11,979 per household[31], a level equal to the average total SGIP residential system costs, estimated to provide for 829 systems;
- Fully subsidized "Community Service Storage" at community centers or schools. Subsidizing small

[29] D.18-12-015, at 41-42 and 115-118.

[30] 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 (San Joaquin ACR, Table 8 at 43). The ACR did not propose that California City receive SGIP-funded storage projects but did not indicate a rationale for this. Monterey Park Tract (MPT) was also not included in the list, as it currently does not receive any ratepayer funded natural gas service; MPT's electric service provider is Turlock Irrigation District.

[31] The average SGIP incentive for residential storage projects that were paid out for Step Three of the SGIP residential storage budget was $3,710. This value was calculated using the SGIP Public Export current as of February 22, 2019.

commercial-sized storage installations BTM at an eligible community location providing a community service, such as a school, community center, or public building, up to a cost cap of $26,379, which is the average total eligible system cost for small SGIP commercial systems up to 10 kW, estimated to provide for nine - 18 systems.

This ruling seeks party comment on the following questions related to the proposals in the SJV ACR:

1. Should the Commission adopt changes to the SGIP program for the SJV pilot communities identified in D.18-12-015 as described in the excerpt from the October 3, 2018 ACR above? Why or why not? In your response, please address how these changes would or would not advance the SGIP's goals to provide environmental benefits (*e.g.*, reduce GHGs), provide grid support (*e.g.*, reduce peak demand, improve efficiency and reliability of the grid), achieve market transformation, maximize ratepayer value, and provide for an equitable distribution of costs and benefits across among customer classes.[32]
    i. If yes:
        1. Should the Commission adopt an SJV set-aside within the SGIP equity budget at the levels suggested in D.18-12-015 and the SJV ACR ($10 million), or some other amount? Should the SJV ACR's proposed division of this set-aside budget between SJV residential and non-residential projects be approved as proposed, or modified in some way?
        2. Should SGIP fully subsidize SJV pilot residential systems with a cost cap of $11,979 as suggested in D.18-12-015 and the SJV ACR, or at some other level? Provide your rationale.
        3. Should SGIP fully subsidize the SJV pilot non-residential systems with a cost cap of $26,379 as

[32] D.16-06-055, at 9-13.

suggested in D.18-12-015 and the San Joaquin ACR, or at some other level? Provide your rationale.

4. The SJV ACR did not include California City in its list of pilot communities that should participate in a SGIP SJV set-aside. Should this community also be eligible for any approved SGIP SJV set-aside? Provide your rationale.

8. Grid Support

This section seeks input on recent SGIP evaluation findings regarding uncaptured system-level grid benefits from storage.

One of three goals for SGIP is providing grid support through the following: 1) reducing or shifting peak demand; 2) improve efficiency and reliability of the distribution and transmission system; 3) lower grid infrastructure costs; 4) provide ancillary services; and, 5) ensure customer reliability.[33] The 2017 SGIP Advanced Energy Storage Impact Evaluation modeled three cases quantifying some of the benefits that storage can provide that support higher penetrations of renewable generation. The evaluation found that between $17 - $32 million in net present value benefits from 2018 to 2030 could be realized through a "High-Value" approach where SGIP storage is dispatched to provide system benefits and operating or contingency reserves in the case of sudden outages, congestion or changes in electricity demand, and that this approach could reduce the fixed capital investment required by load-serving entities to provide sufficient flexibility for higher renewable penetration.[34]

The evaluation recommended the Commission consider ways of promoting participation by SGIP customers in demand response (DR) programs,

[33] D.16-06-055.

[34] "2017 SGIP Advanced Energy Storage Evaluation," September 7, 2018 at 1-23; available at: http://www.cpuc.ca.gov/General.aspx?id=7890

CAISO energy and ancillary service markets and/or the regional Energy Imbalance Market (EIM). It suggested that the Commission could develop program requirements to ensure that storage can reliably count towards flexible resource adequacy requirements and provide operating reserves to reduce procurement costs for the flexible resources needed to achieve renewable and GHG targets.[35] It also suggested that this potential value of storage is left unrealized because there is no contract or mechanism in place to achieve it. It stated that the Commission should consider ways to increase the availability of DR programs to SGIP storage participants and their participation in DR programs.[36] More recently, I understand that SGIP customers have participated in Demand Response Auction Mechanism (DRAM) offerings that provide flexible resource adequacy. The DRAM pilot phase has ended, and the Commission is expected to decide whether and how to continue the DRAM mechanism in the near future.

While these are comprehensive recommendations that warrant further consideration and might lead to new DR programs, as an initial matter, in this proceeding we can consider whether to require new SGIP customers to enroll in an existing DR program or in DRAM, offered by third parties, if it is continued. There is precedent for such a requirement in the electric vehicle (EV) charging incentive programs approved by the Commission (*see* D.16-01-023 (SCE's Charge Ready Pilot Project) requiring participants to enroll in a DR program and D.18-01-024 and D.18-05-040, requiring SCE customers in "priority

[35] The 2017 Demand Response Potential Study found there is decreasing need for "shed" (load drop) demand response but increasing need for flexible resource adequacy. Available here: **http://www.cpuc.ca.gov/General.aspx?id=10622**.

[36] 2017 SGIP Advanced Energy Storage Evaluation, at 1-26 — 1-27.

review" and "standard review" EV charging incentive programs to enroll in an appropriate DR program or implement a site-specific load management plan).

Considering a DR requirement for residential customers raises some unique issues. The Commission has not proposed that residential SGIP customers will receive the greenhouse gas signal (GHG signal) that indicates optimal times to charge and discharge the battery, to achieve the goal of operating the battery to reduce GHG emissions. However, the existing DR offerings and DRAM mechanism, in effect, provide the same information by requesting a reduction in use of electricity from the grid when prices are high (which corresponds to times when GHG emissions are high).

The pending revised Staff Proposal to ensure GHG reductions from new residential SGIP projects requires enrollment in Time of Use (TOU) rates. However, I also recognize that there is some uncertainty whether, in practice, the approved and proposed residential TOU rates will provide enough differential between peak and off-peak prices to create a financial incentive to discharge the battery at peak times (given the losses due to 85 percent RTE and use of electricity for the battery management system). In addition, the largest price differential under TOU rates is limited to only summer months (four to five months of the year). Therefore, it will be necessary to closely monitor the GHG emissions under this approach.

Parties are directed to comment on the following:

1. What are the grid benefits, if any, of onsite solar paired with a storage system that is operated to maximize solar self-consumption?
2. What are the grid benefits, if any, if non-residential SGIP customers are on a "storage" rate that reduces non-coincident demand changes, such as PG&E's

Option S rates and PGE-A-1-STORE and SCE's Option E and TOU-G-1, Option ES rates?[37]

3. Do you agree that the Commission should require new residential SGIP customers, who do not receive a GHG signal, to enroll in an existing DR program offered by their utility or in the DRAM as a way to achieve grid benefits and/or GHG reductions from such systems? Why or why not?
4. Explain how new non-residential SGIP customers can provide flexible resource adequacy that is recognized by CAISO. Should this be required for new non-residential SGIP customers?
5. How can we ensure that municipal utility electric customers who receive SGIP incentives for battery installation provide grid support?
6. Do you agree that the Commission should consider other ways of promoting SGIP customer participation in DR programs, CAISO energy and ancillary service markets and/or the regional EIM to promote operating or contingency reserve capacity? Please provide your rationale, and if "yes," provide your recommendations for how this could occur. What are the obstacles to your recommended pathway and how can these be addressed?

9. Thermal Energy Storage and Coordination with Order Instituting Rulemaking Regarding Building Decarbonization

This section requests input on the need for program modifications to increase SGIP participation by thermal and/or mechanical energy storage systems. A range of energy storage technologies are eligible for SGIP incentives, including electrochemical, mechanical, and thermal energy storage systems. However, to date, only 10 thermal storage projects and two mechanical storage projects have received incentive confirmations for a combined incentive payment

[37] *See* D.18-03-013 (PG&E) and D.18-11-027 (SCE).

of $836,827, one quarter of one percent of total SGIP incentives received by advanced energy storage systems.

Parties are asked to comment on the following:

1. What program modifications, if any, should the Commission adopt to increase SGIP participation by thermal and/or mechanical energy storage technologies?

The Commission recently initiated an Order Instituting Rulemaking (OIR) to begin crafting a policy framework on building decarbonization.[38] The scope of the OIR includes implementation of SB 1477 (Stern, 2018), which requires the Commission to develop a new program, called Technology and Equipment for Clean Heating, to incent the deployment of low-emission space and water heating technologies that are in an early stage of market development in new and existing residential buildings. Certain space and water heating technologies may qualify as thermal energy storage systems and be eligible for SGIP incentives. Therefore, I note my intention here to coordinate closely with the building decarbonization OIR as it develops. Further, I seek party comment on the following:

2. Should the Commission modify SGIP rules to increase the participation of electric heat pump water heaters in either residential and/or non-residential buildings? If so, please describe any recommended changes and your rationale.

10. Other

Consistent with SB 700, do you recommend any additional changes to the program not already discussed?

[38] http://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&docid=255629169

IT IS RULED that:

1. Parties may file comments on the matters discussed in this ruling no later than 45 days from the date of this ruling, with comments limited to 25 pages;

2. Parties may file reply comments on the matters discussed in opening comments no later than 15 days thereafter, with comments limited to 10 pages.

Dated April 15, 2019, at San Francisco, California.

/s/ CLIFFORD RECHTSCHAFFEN
Clifford Rechtschaffen
Assigned Commissioner