Pacific Gas and Electric Company®

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May 24, 2021

Advice 4441-G/6201-E
(Pacific Gas and Electric Company ID U 39 M)

Advice No. 127-E
(Center for Sustainable Energy®)

Advice 4505-E
(Southern California Edison Company U 338-E)

Advice 5712-G
(Southern California Gas Company U 904-G)

Public Utilities Commission of the State of California

Subject: **Self-Generation Incentive Program (SGIP) 2021-2025 Measurement and Evaluation Plan**

Purpose

The SGIP Program Administrators (PAs) hereby jointly submit the SGIP 2021-2025 Measurement and Evaluation (M&E) Plan in accordance with Ordering Paragraph (OP) 7(h) of Decision (D.) 19-09-027.

Background

D.01-03-073 originally established the SGIP M&E requirements to evaluate program administration, progress, and impacts to analyze the overall effectiveness of the program. The current SGIP M&E plan was developed by the California Public Utilities Commission's (Commission or CPUC) Energy Division in accordance with D.16-06-055 to measure and evaluate the progress and impacts of the SGIP for Program Years (PYs) 2016-2020. This plan was originally developed by Energy Division and delivered to the SGIP PAs on January 13, 2017. At the time this plan was written, SGIP was set by statute to conclude in 2020. Senate Bill (SB) 700 (Stats. 2018, Ch. 839) subsequently extended administration of SGIP to January 1, 2026. The Energy Division subsequently modified the M&E plan and delivered it to the PAs via email on March 28, 2019. The modified M&E plan states that "as 2021 approaches, Energy Division, in consultation with the PAs, will develop an M&E plan for PYs 2021-2025."

The original date per D.19-09-027 by which to submit this plan was March 31, 2021. On March 8, 2021 Pacific Gas & Electric Company (PG&E), on behalf of the SGIP PAs, requested a 60-day extension of time to comply with OP 7(h) of D.19-09-027 to finalize the 2021–2025 M&E plan and submit it by May 31, 2021.

On March 24, 2021, Rachel Peterson, Executive Director of the CPUC approved the SGIP PAs' extension request.

Attached to this Advice Letter is the SGIP PY 2021-2025 M&E plan.

Once the PY 2021-2025 M&E plan is approved by the CPUC, PG&E will initiate a bidding process to select a SGIP evaluator. The SGIP PAs respectfully request expedited review and approval of the M&E plan to allow timely execution of the SGIP evaluator contract by January 1, 2022.

Protests

*****Due to the COVID-19 pandemic, PG&E is currently unable to receive protests or comments to this Advice Letter via U.S. mail or fax. Please submit protests or comments to this Advice Letter to EDTariffUnit@cpuc.ca.gov and PGETariffs@pge.com*****

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile or E-mail, no later than June 14, 2021, which is 21 days[1] after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to the SGIP PAs either via E-mail or U.S. mail (and by facsimile, if possible) at the addresses shown below on the same date it is mailed or delivered to the Commission:

For SoCalGas: Attn: Ray B. Ortiz
Tariff Manager - GT14D6

[1] The 20-day protest period concludes on a weekend; therefore, PG&E is moving this date to the following business day.

555 West Fifth Street
Los Angeles, CA 90013-1011
Facsimile No.: (213) 244-4957
E-mail: ROrtiz@socalgas.com

For PG&E: Sidney Dietz
Director - Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177
Facsimile No.: (415) 973-3582
E-mail: PGETarrifs@pge.com

For SCE: Shinjini C. Menon
Managing Director – State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, CA 91770
Telephone No.: (626) 302-3377
Facsimile No.: (626) 302-6396
E-mail: AdviceTariffManager@sce.com

And

Tara S. Kaushik
Managing Director, Regulatory Relations
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, California 94102
Facsimile: (415) 929-5544
E-mail: Karyn.Gansecki@sce.com

For CSE: Sephra Ninow
Director, Regulatory Affairs
Center for Sustainable Energy®
3980 Sherman Street, Suite 170
San Diego, CA 92110
E-mail: sephra.ninow@energycenter.org

Any person (including individuals, groups, or organizations) may protest or respond to an Advice Letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the Advice Letter protested; grounds for the protest;

supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

PG&E requests that this Tier 2 advice submittal become effective on regular notice, June 23, 2021 which is 30 calendar days after the date of submittal.

Notice

In accordance with General Order 96-B, Section IV, a copy of this Advice Letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for R.20-05-012. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice Letter submittals can also be accessed electronically at: http://www.pge.com/tariffs/.

/S/
Sidney Dietz
Director, Regulatory Relations

Attachments

cc: Service List R.20-05-012

California Public Utilities Commission

ADVICE LETTER SUMMARY

ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39 M)

Utility type:
☑ ELC ☑ GAS ☐ WATER
☐ PLC ☐ HEAT

Contact Person: Annie Ho
Phone #: (415) 973-8794
E-mail: PGETariffs@pge.com
E-mail Disposition Notice to: AMHP@pge.com

EXPLANATION OF UTILITY TYPE
ELC = Electric GAS = Gas WATER = Water
PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 4441-G/6201-E et al.

Tier Designation: 2

Subject of AL: Self-Generation Incentive Program (SGIP) 2021-2025 Measurement and Evaluation Plan

Keywords (choose from CPUC listing): Compliance

AL Type: ☐ Monthly ☐ Quarterly ☐ Annual ☑ One-Time ☐ Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #:
D.19-09-027

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? ☐ Yes ☑ No

If yes, specification of confidential information:
Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? ☐ Yes ☑ No

Requested effective date: 6/23/21

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed[1]: N/A

Pending advice letters that revise the same tariff sheets: N/A

[1]Discuss in AL if more space is needed.

Clear Form

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Sidney Dietz, c/o Megan Lawson
Title: Director, Regulatory Relations
Utility Name: Pacific Gas and Electric Company
Address: 77 Beale Street, Mail Code B13U
City: San Francisco, CA 94177
State: California Zip: 94177
Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx: (415)973-3582
Email: PGETariffs@pge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Clear Form

Attachment A

Introduction

In accordance with California Public Utilities Commission (CPUC) Decision (D.)19-09-027, Ordering Paragraph (OP) 7(h), the Self-Generation Incentive Program (SGIP) Program Administrators (PAs)[1] present this plan to measure and evaluate the progress and impacts of the SGIP for Program Years (PYs) 2021-2025.

Background

SGIP began in 2001, and the CPUC previously directed the PAs to complete a number of measurement and evaluation (M&E) plans through 2020.[2]

In October 2009, the Governor signed Senate Bill (SB) 412 (Stats. 2009, ch. 182).[3] The CPUC Energy Division subsequently developed a Staff Proposal with recommendations on how to modify SGIP to comply with SB 412. In D.11-09-015, the CPUC modified SGIP to conform to SB 412 and accepted a Staff Proposal recommendation that the CPUC provide clear guidance for future SGIP M&E work after the implementation of those program changes.[4]

In September 2018, the Governor signed SB 700 (Stats. 2018, ch. 839), authorizing the CPUC to extend collections up to $166 million in ratepayer funds annually for the SGIP to December 31, 2024 and extend SGIP administration to January 1, 2026. In addition, SB 700 required the CPUC to adopt new program rules to ensure energy storage systems receiving SGIP incentives reduce greenhouse gas (GHG) emissions and stipulated that all SGIP generation technologies must use 100% renewable fuel by January 1, 2020. Subsequently, D.19-08-001 established minimum GHG emissions reduction standards through

[1] SGIP operates in the service areas of Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), Southern California Gas Company (SoCalGas) and San Diego Gas and Electric Company (SDG&E). SGIP is administered by PG&E, SoCalGas and SCE in their respective service territories. The Center for Sustainable Energy (CSE) administers SGIP in SDG&E's service territory. Collectively, PG&E, SCE, SoCalGas and CSE are known as the SGIP Program Administrators (PAs).

[2] These include D.02-09-051 and an Administrative Law Judge's (ALJ) ruling of April 24, 2002 in Rulemaking (R.)99-10-025 and a May 18, 2006 Administrative Law Judge's ruling approving and M&E plan for 2006 and 2007, issued in R.06-03-004. The deadlines in these orders have also been adjusted on several occasions, such as the ALJ Rulings of February 27, 2007, and June 24, 2008. In a February 3, 2009 ruling in R.08-03-008, the assigned ALJ approved an M&E plan for SGIP for 2009 through 2011. In a July 23, 2014 ruling in R.12-11-005, the assigned ALJ approved an SGIP M&E plan for 2014-2015. D.16-06-055 directed the Energy Division to develop the 2016-2020 M&E plan in consultation with the PAs.

[3] Senate Bill (SB) 412 (Stats. 2009, ch. 182) authorized the CPUC to determine eligible SGIP technologies based on greenhouse gas (GHG) emissions reductions. SB 412 also extended the SGIP sunset date from January 1, 2012 to January 1, 2016.

[4] Staff Proposal, Part I, Section 4.5.1 states: "Since its inception, SGIP has undertaken an extensive measurement and evaluation (M&E) process. A full list of SGIP M&E reports can be accessed from the CPUC's website. These reports, which include annual Impacts Evaluations, Process Evaluations, Market Characterization Reports, Renewable Fuel Use Reports, and Cost-Effectiveness Evaluations, have all contributed to staff's analysis and recommendations in this proposal. Following the implementation of program changes pursuant to SB 412, staff recommends that the Commission provide clear guidance for future SGIP M&E work…".

new operational requirements as well as verification and enforcement requirements for all SGIP energy storage project applications received in early 2020.

In response to the increasing risk of California wildfires and related Public Safety Power Shutoff (PSPS) events, D.19-09-027 established the SGIP Equity Resiliency Budget to provide resiliency benefits through energy storage incentives to the most vulnerable customers and those that provide critical facilities or infrastructure in areas most affected by the threat of wildfires and PSPS events. Among other things, D.19-09-027 directed the SGIP PAs to jointly submit a Tier 2 advice letter no later than March 31, 2021 to finalize the 2021-2025 SGIP evaluation plan, providing suggested research questions and processes to be included specifically relating to the Equity Resiliency Budget, PSPS events, and Equity Budget storage system metrics.

On March 8, 2021, PG&E, on behalf of the Joint SGIP PAs, requested a 60-day extension of time to comply with OP 7(h) of D.19-09-027 to finalize the 2021–2025 M&E Plan and submit it by May 31, 2021. On March 24, 2021, Rachel Peterson, Executive Director of the CPUC, approved the Joint SGIP PAs' extension request. As such, this SGIP PY 2021-2025 M&E Plan is timely submitted.

Regulatory Requirements for the SGIP Measurement & Evaluation Plan

D.16-06-055 set out firm requirements for the M&E plan, including that it require an evaluation of the administrative performance of each PA every year and fiscal performance every other year, with the first rounds of each of these evaluations completed within twelve months of the effective date of the Decision.

D.19-08-001 directed the SGIP storage impact evaluator to provide summary information on the GHG performance of developer fleets as part of the annual SGIP storage evaluation. The SGIP evaluator will calculate and provide in each annual SGIP storage impact evaluation report the fleet GHG emissions performance of new commercial projects in years six through ten of their permanency period, by developer. The SGIP evaluator should utilize the data submitted quarterly by developers and any other data needed to complete the evaluation. Developers are required to provide quarterly data and ensure quarterly performance feedback for projects in years six through ten of their permanency period to allow developers an opportunity to make changes to projects that are increasing GHGs prior to the listing of the fleet GHG emissions performance in the annual SGIP storage impact evaluation.

D.19-09-027 stated that to ensure a transparent review and comment process on the 2021-2025 evaluation plan, the PAs should jointly submit a Tier 2 advice letter to finalize the evaluation plan. D.19-09-027 also included a list of specific evaluation questions germane to the various SGIP budget categories:

1. Equity Resiliency Budget:
    a. What are the resiliency needs of participating customers?
    b. For customers whose resiliency needs include backup for life-support systems, medical equipment, or any use where product failure could lead to injury or loss of life, did customers rely exclusively on their equity resiliency storage systems for backup? If no,

what additional equipment did customers install or rely on and how much did that equipment cost? If yes, did the storage systems successfully provide the needed backup?

c. What types of customers accessed the incentive?
    i. Characterize participating customers by customer class, geographic location, on-site load, whether systems were paired with solar, and other key variables.
    ii. Provide a list of participating developers and operators of the systems.
d. What types (frequency, duration) of outages did participating customers experience? How many outages were PSPS events?
    i. Did equity resiliency budget projects address critical resiliency needs? What percentage of the outage's duration did the SGIP-incentivized storage system provide power? How does the answer differ for storage-only versus storage paired with solar?
    ii. Did the storage system energize the full on-site load or a subset?
e. To what extent did customers report use of the incentives to install storage as an alternative to gasoline powered generators?
f. Provide an estimate of average customer and total GHG emissions avoided as a result of incentive use.
g. Were systems capable of longer duration discharge enrolled in appropriate programs (such as demand response or resource adequacy) and dispatched to address system ramping needs? If so, please summarize system ramping benefits provided, as feasible.
h. What is the difference between the implied value of lost load ($/kWh) of Equity Resiliency storage systems versus gasoline powered generators? If the storage system is more expensive per kilowatt hour of backup energy provided, does the value of reduced GHG emissions per kilowatt hour ($/kWh) make up the difference?

2. Please provide information on equity budget storage system metrics, to the extent feasible and as directed by Commission staff:
    a. Actual costs of storage systems (equipment);
    b. Actual costs of storage system installations;
    c. Assessment of how many storage systems require electric panel upgrades;
    d. Customer bill savings, relative to several baselines:
        i. Customer is on the same TOU tariff but does not have storage;
        ii. Customer's default tariff; and,
        iii. The most advantageous tariff available to the customer;
    e. Impact on electric system costs;
    f. Interaction between storage and grid-responsive appliances (where applicable);
    g. Battery cycling metrics:
        i. Daily percent capacity utilization;
        ii. Discharge at on-peak and off-peak;
        iii. Charging at on-peak and off-peak;
    h. Use of longer duration discharge systems to address system ramping needs.

3. The 2021 SGIP storage impact evaluation for program year 2021 should be provided no later than December 2, 2022, be based on a representative sampling of customers as directed by Commission staff, and should assess regarding the equity resiliency budget:
    a. The known and expected performance of projects as a source of backup power;
    b. GHG emissions impacts;
    c. Communities served by the critical facility or critical infrastructure; and,
    d. Customer coordination with the Office of Emergency Services, the electrical corporation serving the community and relevant local governments.

Public Utilities Code Section 379.6(l) also sets out performance measures for the program as a whole that must be evaluated as a part of any M&E plan. These are:

> (1) The amount of reductions of emissions of greenhouse gases.
>
> (2) The amount of reductions of emissions of criteria air pollutants measured in terms of avoided emissions and reductions of criteria air pollutants represented by emissions credits secured for project approval.
>
> (3) The amount of energy reductions measured in energy value.
>
> (4) The amount of reductions of aggregate noncoincident customer peak demand (normally expressed as kilowatts (kW)).
>
> (5) The ratio of the electricity generated by distributed energy resource projects receiving incentives from the program to the electricity capable of being produced by those distributed energy resource projects, commonly known as a capacity factor.
>
> (6) The value to the electrical transmission and distribution system measured in avoided costs of transmission and distribution upgrades and replacement.
>
> (7) The ability to improve onsite electricity reliability as compared to onsite electricity reliability before the self-generation incentive program technology was placed in service.

For SGIP participants receiving performance-based incentive (PBI) payments, the Decision also directs the M&E plan to ensure a public online report documenting performance for the following measures: energy generated (kWh), gross and net greenhouse gas (GHG) emissions, number of charging and discharging events and total amount of energy charged and discharged (for storage), amount and type of fuel consumed, and heat recovered [for combined heat and power (CHP) systems]. Additional measures, such as system efficiency for CHP and round-trip efficiency for storage systems, may also be included.

Proposed Measurement & Evaluation Plan for SGIP: Program Years 2021-2025

Public Website for SGIP Performance Data

As proposed in the previous M&E plan, the SGIP PAs developed a public website (selfgenca.com) that allows access to the following SGIP data for each active SGIP project that receives PBI funding:

- Energy generated in kilowatt-hours (kWh)
- Fuel type (natural gas or renewable fuel)
- Amount of fuel consumption (SCF)
- Amount of waste heat recovered (MMBtu) for combined heat and power (CHP) projects
- Gross and net GHG emissions
- For energy storage projects, the number of charging and discharging events and total amount of energy charged and discharged.

Customer load data is specifically excluded from the data to be publicly displayed. While not specified in the Decision, individual customer identities must remain confidential, and therefore, the website must not directly reveal a customer's identity.

While the Decision only requires that this data be publicized for PBI projects, to the extent this data can be collected for non-PBI projects then that information should be included as well.

Reports

This M&E plan includes the following studies to be conducted in accordance with the Decisions and other mandates. It includes the deadlines for M&E activities for PY 2021-2025. This M&E Plan includes new studies proposed by the SGIP PAs incremental to the previous M&E plan, while maintaining all previously required studies.

- Biannual Program-Wide Impact Evaluations: Collect data, conduct analyses and provide biannual impact evaluations on SGIP for PY 2020-2021 (due[5] September 30, 2022) and PY 2023-2024 (due September 30, 2025). This report covers all technologies incentivized by SGIP, in contrast with the annual energy storage and HPWH-specific impact evaluations. The PY 2025 impact evaluation should be submitted as part of the Final Program Summary in 2026.

- Annual Energy Storage Impact Evaluations on various impacts of SGIP-funded energy storage projects for PY 2021 (due December 2, 2022[6]), PY 2022 (due June 30, 2023), PY 2023 (due June 30, 2024), PY 2024 (due June 30, 2025) and PY 2025 (due June 30, 2026). Detailed requirements for these annual impact evaluations appear later in this plan.

[5] "Due" in this context means that a draft version is finalized by the PAs and submitted to Energy Division by this date for review prior to distribution to the public. Renewable Fuel Use Reports are excepted; they may be finalized and distributed by the PAs without Energy Division review.

[6] D.19-09-027 states that the PY 2021 storage impact evaluation should be provided no later than December 2, 2022; however, the report will likely be delivered earlier because energy storage impacts must be incorporated into the SGIP PY 2020-2021 Program Impact Evaluation due September 30, 2022.

- Annual Heat Pump Water Heater (HPWH) Impact Evaluations on various impacts of SGIP-funded HPWH projects[7] for PY 2022 (due June 30, 2023), PY 2023 (due June 30, 2024), PY 2024 (due June 30, 2025) and PY 2025 (due June 30, 2026). Detailed requirements for these annual impact evaluations appear later in this plan.

- Biannual review of the performance of each PA (due May 1, 2022 and 2024). These reviews should include at a minimum a survey of program participants' feedback regarding the PA's clarity and timeliness of oral and written communications, their accessibility, their helpfulness to applicants submitting and processing applications, and the clarity and helpfulness of their websites. Currently, the third-party evaluator completes this review annually.

- Biannual Program Performance and Process Evaluations (due May 1, 2023 and 2025). The new Performance and Process evaluation report will encompass the scope of the biannual Review of PA Performance. The Program Performance and Process Evaluation report will further include an evaluation of the overall effectiveness of program design and processes in order to improve program administration. This will provide the PAs with actionable recommendations to improve program delivery and better meet the needs of stakeholders, while satisfying the D.16-06-055 requirement to evaluate administrative performance every year.

- Biannual review of SGIP fiscal performance (due June 1, 2023 and 2025). Per the Decision, these fiscal audits should ensure that program funds are accounted for, are being spent appropriately, and that safeguards are in place to ensure this.

- Biannual Energy Storage Market Assessment report (due October 1, 2023 and 2025). The new Energy Storage Market Assessment should address research questions, as determined in D.19-09-027, to ensure the evaluations provide useful information for the Commission to evaluate the efficacy and efficiency of the equity and equity resiliency budgets. The study should also calculate the cost-effectiveness of storage technologies.

- Renewable Fuel Use Reports (RFURs; due August of each year). As currently required, these reports should include an analysis of renewable fuel use data for SGIP participants.

  Market Assessment Studies for Generation and HPWH Technologies (due August 31, 2023). This study is similar to the Energy Storage Market Assessment in that it should examine current market conditions and calculate cost effectiveness associated with SGIP generation and HPWH technologies.

[7] The SGIP HPWH Staff Proposal was filed by Energy Division on April 16, 2021 and proposes an annual impact evaluation of HPWHs. Given the timeline to finalize program administration of HPWH, it is unlikely that many HPWHs will enter the program in PY 2021, thus this M&E plan proposes an evaluation beginning in PY 2022 once there are HPWHs to evaluate.

- Final Program Summary (due December 31, 2026): Prepare a final summary report covering the entirety of the SGIP from its inception in 2001 through the end of 2025. This summary should also include an SGIP-wide impact evaluation for PY 2025.

While no specific M&E budget is set for PY 2021-2025, in D.11-09-015, the CPUC established that the overall budget for administration of SGIP (including M&E expenditures) should not exceed 7% of SGIP funding.[8] D.20-01-021[9] further established that CSE's allocation for administrative funds should increase from 7% to 10% for the 2020-2024 period.

The work will be funded by the four SGIP PAs through a co-funding agreement based on the current CPUC-approved budget allocation (PG&E 44%, SCE 34%, CSE 13%, and SoCalGas 9%) for shared expenses.

The nature of the reports required by this M&E plan differs somewhat from previous SGIP M&E plans in the following ways:

- New annual impact evaluations for HPWH projects are required beginning in PY 2022.
- New biannual Energy Storage Market Assessments are required.
- A Market Assessment for Generation and HPWH Technologies is required.
- This M&E plan enhances the PA administrative performance report with biannual program process evaluations. The scope of the process evaluations should balance the aspects of PA performance with a more in-depth evaluation of program processes to improve program administration. D.16-06-055 requires that M&E funds be used to evaluate administrative performance every year. This proposal to enhance the 2023 and 2025 PA reviews to include biannual process evaluations will provide the PAs with actionable recommendations to improve program delivery, while satisfying the decision requirement.
- New Developer Fleet storage GHG compliance tracking is required.

[8] See D.11-09-015 at 59.

[9] See D.20-01-021 at 26.

Details of Proposed Reports

The following table summarizes the reports required by this M&E plan and the due dates for each.

Report	Due Date
Review of Administrative Performance of Each PA for PY 2021	May 1, 2022
Renewable Fuel Use Report for Q3 + Q4 PY 2020 and Q1+Q2 PY 2021	August 31, 2022
SGIP Impact Report for PY 2020-2021	September 30, 2022
Energy Storage Impact Report for PY 2021	December 2, 2022[10]
SGIP Program Performance and Process Evaluation	May 1, 2023
Biannual Fiscal Audit	June 1, 2023
Energy Storage Impact Report for PY 2022	June 30, 2023
HPWH Impact Report for PY 2022	July 31, 2023
Renewable Fuel Use Report for Q3 + Q4 PY 2021 and Q1 + Q2 PY 2022	August 31, 2023
Generation/HPWH Cost-Effectiveness/Market Assessment Study	August 31, 2023
Biannual Energy Storage Market Assessment	October 1, 2023
Review of Administrative Performance of Each PA for PY 2023	May 1, 2024
Energy Storage Impact Report for PY 2023	June 30, 2024
HPWH Impact Report for PY 2023	July 31, 2024
Renewable Fuel Use Report for Q3 + Q4 PY 2018 and Q1 + Q2 PY 2019	August 31, 2024
SGIP Impact Report for PY 2022-2023	September 30, 2024
SGIP Program Performance and Process Evaluation	May 1, 2025
Biannual Fiscal Audit	June 1, 2025
Energy Storage Impact Report for PY 2024	June 30, 2025
HPWH Impact Report for PY 2024	July 31, 2025
Renewable Fuel Use Report for Q3 + Q4 PY 2019 and Q1 + Q2 PY 2020	August 31, 2025
Biannual Energy Storage Market Assessment	October 1, 2025
Review of Administrative Performance of Each PA for PY 2025	May 1, 2026
Energy Storage Impact Report for PY 2025	June 30, 2026
Renewable Fuel Use Report for Q3 + Q4 PY 2020 and Q1 + Q2 PY 2021	August 31, 2026
HPWH Impact Report for PY 2025	July 31, 2026
Final Program Summary PY 2001-2025	December 31, 2026

[10] D.19-09-027 states that the PY 2021 storage impact evaluation should be provided no later than December 2, 2022; however, the report will likely be delivered earlier because energy storage impacts must be incorporated into the PY 2020-2021 Program Impact Evaluation due September 30, 2022.

Descriptions of Each Report

Biannual Review of Administrative Performance of Each PA

The reports are to include, at a minimum, a survey of program participants regarding each PA's clarity and timeliness of oral and written communications, their accessibility, their helpfulness to applicants submitting and processing applications, and the clarity and helpfulness of their websites. D.16-06-055 requires an annual review of the administrative performance of each PA.[11] This biannual review, along with the biannual process evaluations, will satisfy the decision requirement.

Biannual Program Process Evaluations

The process evaluation is a new report that will encompass the scope of the biannual Review of Administrative Performance of each PA, as well as further determine the overall effectiveness of program design and processes. The process evaluation will provide a more holistic view of program performance, including documenting barriers, determining the success of the PAs in meeting their stated goals, and providing actionable recommendations for improved program delivery. The scope of the process evaluations should encompass all aspects of PA performance, while further allowing for more in-depth evaluation of program processes to improve program administration.

D.16-06-055 requires that M&E funds be used to evaluate administrative performance every year. This proposal to replace two PA reviews with biannual process evaluations will provide the PAs with actionable recommendations to improve program delivery, while satisfying the decision requirement.

Biannual Fiscal Audit Reports

The Decision requires biannual fiscal audit reports on SGIP.[12] Per the Staff Proposal, these audits should ensure that SGIP funds are accounted for, are being spent appropriately, and that safeguards are the place to ensure this.

Biannual SGIP program-wide Impact Evaluation Reports

This M&E plan continues previous practices by requiring SGIP program-wide impact evaluation reports on a biannual basis. However, SGIP-funded energy storage and HPWHs are subject to annual impact evaluation and reporting. Among the impacts to be assessed on an SGIP-wide biannual basis are:

- Electrical energy production and demand reduction by specific time periods (e.g., peak hour as well as seasonal) and by technology category.
- Operating and reliability performance characteristics (e.g., capacity factor) for each technology category and how they compare to each other.

[11] D.16-06-055 at 47.

[12] D.16-06-055 at 47.

- Electrical, thermal and overall efficiencies and the contribution of each technology category to electricity system efficiency and reliability.

- Extent to which SGIP technologies employ renewable fuels and the impact of that fuel use on performance and cost characteristics (including a breakdown of how each technology category performs on GHG emissions based on renewable projects in that category, non-renewable projects in that category, and blended projects in the category).

- The extent to which each technology category provides net GHG emissions reductions and special considerations to changes in design or operation that could lead to improved GHG emission reductions.

- Developer Fleet Compliance

In addition to the impacts discussed above, Public Utilities Code § 379.6(l) requires that other SGIP goals and objectives be assessed. These include:

- The amount of reductions of emissions of criteria air pollutants measured in terms of avoided emissions and reductions of criteria air pollutants represented by emissions credits secured for project approval. Potentially, this analysis could include a quantification of the contribution of SGIP projects to an Air Quality Management District's pollution goals (if applicable).

- The amount of reductions of customer peak demand (kW).

- The value to the electrical transmission and distribution system measured in avoided costs of transmission and distribution upgrades and replacement. This M&E plan proposes to defer consideration of this program objective until the Distribution Resources Plan (DRP) proceeding (R.14-08-013) completes its consideration of the locational value of distributed energy resources.[13]

- The ability to improve onsite electricity reliability as compared to onsite electricity reliability before the SGIP project was placed into service.

Furthermore, in the Decision, the CPUC also embraced certain other SGIP goals which may require measurement and evaluation. These include:

- Extent to which energy storage projects facilitate integration of renewable energy resources.[14]

[13] Once approved and implemented, the Locational Net Benefits Analysis (LNBA) in the DRP will provide estimated locational avoided transmission and distribution costs. One of the LNBA deliverables is a public tool where one may enter a distributed energy resource profile (such as that of an SGIP-funded project) to calculate the estimated net benefits of a project at a given location.

[14] There would likely need to be a more dynamic methodology to analyze integration of renewables, perhaps considering renewable generation capacity when storage is charging/discharging and evaluating how storage shifts

- Extent to which SGIP resources affect the water impacts of grid energy generation.[15]

- Extent to which SGIP resources improve the efficiency and reliability of the transmission and distribution system.[16]

- Extent to which SGIP resources provide ancillary services to the utilities and grid operators.[17]

The biannual SGIP impact evaluation reports must address, at a minimum, all of the above bullet points. Energy Division may also recommend that the biannual impact evaluation reports consider other research questions. Importantly, these reports should incorporate the findings from the annual energy storage and HPWH impact reports so as not to generate duplicate analyses for the energy storage sector.

Annual Energy Storage Impact Evaluations

The previous M&E plan established a series of annual energy storage impact evaluations to ensure that stakeholders and decision-makers are receiving regular updates on this emerging technology. In addition to the items required for the biannual impact evaluations described above, the following information should be included in the annual storage impact report:

- Net GHG emissions of energy storage systems as a class, and net GHG emissions differentiated between residential and non-residential systems, and between systems paired with renewable generation and non-paired systems.

- Timing of charge and discharge on an average basis and duration, and identification of groups of storage systems exhibiting certain trends in the timing of charge and discharge. In other words, the average timing should be broken down to reveal any distinct groups of storage systems that have similar patterns of charge and discharge.

this generation. Examining local renewable generation as well as system-wide renewable integration may also be required. The analysis may also be conducted per IOU territory or possibly per Sub-LAP area (the CAISO uses sub-LAPs for behind the meter resources participating in the wholesale market as demand response). These details will need to be addressed in consultation with stakeholders on the M&E plan.

[15] D.16-06-055 at 9.

[16] D.16-06-055 at 10.

[17] Research questions for this topic may include: Why are systems being dispatched (generation – generate electricity; storage – charge or discharge)? Are some technologies, like storage, responding to signals from utilities or participating in wholesale markets? Knowing why systems are being used may help in determining if they are providing ancillary services. If SGIP projects are participating in the wholesale market, what type of response do they produce (proxy demand response or non-generating resource) and what services do they provide (energy, resource adequacy, ancillary services)? At a minimum, the evaluator should determine if an SGIP project is participating in load-modifying demand response programs or participating in supply-side demand response programs.

- In accordance with Public Utilities Code § 379.6(I)(6), quantify any contribution of energy storage projects to grid services where that storage substituted for and replaced planned investment into grid services.

- Summary information on the GHG performance of developer fleets, in accordance with D.19-08-001.

To achieve these goals, all storage projects must be monitored at 15-minute intervals for power flow at the utility point of connection, at the storage alternating current (AC) connection, and at the AC connection for any additional on-site generating sources. Measurement accuracy must be assured for each of these, although at this time the acceptable bounds of accuracy have not been determined. Currently, 15-minute interval consumption data from the inverter native to the battery (as opposed to a revenue-grade meter attached to the battery) is acceptable. However, this requirement may be changed by Energy Division if the accuracy of the inverter data is not sufficient to allow for acceptable GHG emission calculations.

The following additional data from SGIP-funded energy storage projects must be provided to the evaluator: the customer's load as registered by the utility's meter, the customer's utility, the customer's tariff (including all tariff add-ons such as net energy metering, pilot programs or wholesale market participation), and the interval data described above for any paired renewable generation such as a solar system.

This M&E plan specifically calls for the evaluation of the performance of energy storage systems to include results for sub-categories of customers, including residential and non-residential customers, customers with and without paired generation, customers on different rates, and customers that do and do not participate in demand response programs or wholesale market programs.

D.19-09-027,[18] which established the SGIP Equity Resiliency Budget, additionally states that the 2021 SGIP storage impact evaluation for program year 2021 should be provided no later than December 2, 2022, be based on a representative sampling of customers as directed by Commission staff, and should assess the following regarding the equity resiliency budget:

- The known and expected performance of projects as a source of backup power;
- GHG emissions impacts;
- Communities served by the critical facility or critical infrastructure; and,
- Customer coordination with the Office of Emergency Services, the electrical corporation serving the community and relevant local governments.

Annual HPWH Impact Evaluations

Similar to the energy storage impact evaluations, this M&E plan establishes a series of annual impact evaluations focused on a single SGIP technology category – Heat Pump Water Heaters (HPWH). This

[18] See D.19-09-027 at 103.

impact evaluation should summarize all the benefits achieved by a SGIP funded HPWH, including, but not limited to, the total GHG reductions achieved by the SGIP funded load shifting HPWH, which includes reductions in therms or kWhs, and the peak reduction benefits compared to a non-load shifting HPWH. Specific evaluation metrics should be developed by the SGIP Evaluator in consultation with CPUC staff.

Renewable Fuel Use Reports

The RFURs have two main objectives:

- Verify that SGIP projects receiving renewable incentives are in compliance with minimum renewable fuel use requirements (i.e., not "fuel switching"),
- Identify GHG emission impacts associated with renewable fuel use projects, trends in the impacts, and overall implications of renewable fuel use projects and GHG emission reductions.

This M&E plan proposes to continue requiring the submission of RFURs through 2026. In accordance with D.02-09-051 and D.16-06-055, SGIP projects using renewable fuels must achieve specified fuel use requirements. In addition, with increased interest in reducing GHG emissions, there is increased emphasis on the ability of SGIP technologies to use renewable fuels and to understand the operational and cost implications of increased renewable fuel use. Beginning in 2020, generation projects consuming natural gas must use 100% biogas to receive an SGIP incentive.[19]

Fundamentally, the overall goal of the RFURs is to help CPUC staff and the SGIP PAs in making recommendations concerning modifications to the renewable project aspects of the SGIP. Consequently, the first objective of these reports is to identify and report on the compliance of renewable fuel use projects receiving incentives under the SGIP with renewable fuel use requirements. As noted above, to maximize the ability to use the RFURs to sanction those SGIP participants that do not meet renewable fuel use requirements in a timely fashion, the RFUR shall include an analysis of renewable fuel use data collected through June 30th of the year the report is delivered.

As with the previous M&E plan, annual RFU reports are required to be submitted in August of each calendar year.

Biannual Energy Storage Market Assessment

D.19-09-027 established the SGIP Equity Resiliency Budget to provide resiliency benefits through energy storage incentives to the most vulnerable customers and those that provide critical facilitates or infrastructure areas most affected by the threat of wildfires and PSPS events. The Decision also directs Commission staff to work with the SGIP evaluator to incorporate additional research questions, provided earlier in this M&E plan, to evaluate the efficacy and efficiency of the equity and equity resiliency budgets. The SGIP evaluator will work with the PAs and CPUC staff to finalize the research

[19] See D.16-06-055 at 2.

questions for this market assessment. Potential research questions as stated in D.19-09-027 (page 101) include:

- What are the resiliency needs of participating customers?
- For customers whose resiliency needs include backup for life-support systems, medical equipment, or any use where product failure could lead to injury or loss of life, did customers rely exclusively on their equity resiliency storage systems for backup? If no, what additional equipment did customers install or rely on, and how much did that equipment cost? If yes, did the storage systems successfully provide the needed backup?
- What types (frequency, duration) of outages did participating customers experience? How many outages were PSPS events?
- To what extent did customers report use of the incentives to install storage as an alternative to gasoline powered generators?
- What is the difference between the implied value of lost load ($/kWh) of Equity Resiliency storage systems versus gasoline powered generators? If the storage system is more expensive per kilowatt hour of backup energy provided, does the value of reduced GHG emissions per kilowatt hour ($/kWh) make up the difference?
- What are the actual costs of storage systems (equipment) and installations?
- What is the influence of the SGIP on the battery storage market?
- What is the market structure for storage: simultaneous installation of solar and storage relative to separate installations?

Cost-Effectiveness/Market Assessment Studies for Generation and HPWH Technologies

This study is similar to the Energy Storage Market Assessment in that it should examine current market conditions and calculate cost effectiveness associated with SGIP generation and HPWH technologies. The SGIP evaluator will work with the PAs and CPUC staff to finalize the research questions for this market assessment.

Final Program Summary Report

By statute, SGIP may only continue through 2025.[20] Due to the wide variety of technologies deployed and the extensive amount of data collected over the course of SGIP, the program will be able to provide truly unique insights into the actual costs, performance, practices and processes of distributed energy resources (DER) deployed in a commercial setting. A summary report on SGIP can provide both a retrospective set of lessons learned and a springboard for setting future DER policies and programs.

The Final SGIP Summary Report shall provide a comprehensive review of SGIP from its inception through December 31, 2025. Topics in the report will include, but not be limited to, the following:

[20] Public Utilities Code § 379.6(a)(2).

- Goals of the program and progress toward achieving them (original and changes as new policies emerged);
- Projects installed (e.g., overall, by DER type, rebated capacity and locations);
- Impacts (e.g., electricity generated, coincident peak contributions, system efficiency impacts, grid service impacts and GHG emission reductions);
- Trends (e.g., costs, technology specific and cumulative rebated capacities, average capacity factors by technology and overall, changes in efficiencies and renewable fuel use);
- Market transformation goals and levels of success;
- Lessons learned and recommendations; and
- SGIP-wide impact evaluation of PY 2025.

With respect to the Market Transformation (MT) component of this report, it should be written with the following in mind. The key defining metric of MT achievement is whether the market for the products and services supported by SGIP is self-sufficient in the absence of the program.[21] Additionally, this M&E plan anticipates that the following MT metrics identified in the draft 2015 SGIP MT report may also be analyzed, although these are subject to change:

- There will be no significant barriers preventing utility customers and utilities to routinely use distributed generation and energy storage technologies as part of their energy solutions;
- Changes in market operation along with performance and cost improvements will allow distributed generation and energy storage to be adopted without incentives; and
- The market will encourage development and adoption of even more efficient distributed generation or energy storage technologies, services and solutions into the market.

Data Quality and Reporting Requirements

Numerous evaluation reports from previous years indicate that there has been a systematic failure regarding data quality and reporting from some SGIP projects. Most SGIP data providers appear to be reporting data to evaluators adequately; but many SGIP data providers do not, or report data in such a way that it is not usable by evaluators. Examples include:

[21] See, e.g., D.09-09-047 at 89 for a discussion of MT in the energy efficiency context. See also the 2015 Energy Division Staff Proposal on SGIP at 8.

- In Renewable Fuel Use Report No. 29, the authors noted that nine blended on-site biogas projects and one directed biogas project could not have their compliance status determined because insufficient data were available.[22]

- In the 2014-2015 Impact Evaluation Report, the authors noted that legal negotiations with utilities delayed provision of customer load data for projects with storage systems until late August 2016. In addition, one storage vendor provided only anonymized customer data, precluding matching of those customers with utility load data.[23]

Systematic failures to provide accurate and reliable data such as these are contrary to the statutory requirement of all SGIP projects to provide relevant data for evaluation purposes upon request.[24]

All SGIP projects are expected to report data that will allow evaluators to make the findings required by statute and the CPUC's decisions. The developers or project owners responding to a request for data should use a data request template provided by the evaluator. SGIP projects should report data in accordance with the parameters defined in the template, including the time zone to use for interval consumption data reports. SGIP developers should endeavor to have a single point of contact within the organizations to respond to data requests from the evaluator.

Furthermore, customer load data required for the evaluations must be provided to the evaluator by the utility in a timely manner.

This M&E plan also establishes, for the sake of clarity, that individual customer confidentiality must be maintained throughout the M&E process. The M&E reports generated by the evaluator using confidential data should include generalized descriptions of the data that do not reveal an individual customer's personally identifying information (PII). However, any customer participating in SGIP must continue to specifically allow developers, PAs and SGIP evaluators to separately and jointly use data that may include their PII as part of the evaluation process.

This M&E plan specifically authorizes a single PA, chosen by a plurality of the SGIP Working Group, to oversee the contracting required to execute the plan and conduct the bidding process for the contracting work as necessary.

[22] Renewable Fuel Use Report No. 29 (November 2020) at 5.

[23] 2014-2015 Impact Evaluation Report (November 2016) at 6-1.

[24] P.U. Code Sec. 379.6(f).

PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency Financing

California Alternative Energy and Advanced Transportation Financing Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Cenergy Power
Center for Biological Diversity

Chevron Pipeline and Power
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

East Bay Community Energy Ellison Schneider & Harris LLP Energy Management Service
Engineers and Scientists of California

GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz & Ritchie
Green Power Institute
Hanna & Morton
ICF
IGS Energy
International Power Technology
Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

Office of Ratepayer Advocates
OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead Electric Company
Western Manufactured Housing Communities Association (WMA)
Yep Energy