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. On May 24, 2021, PG&E, on behalf of the SGIP PAs, submitted a proposed M&E Plan via PG&E Advice Letter 4441-G/6201-E, et al. (Joint Advice Letter), to the CPUC. On June 24, 2021, the CPUC suspended the Joint Advice Letter for up to 120 days beginning June 23, 2021. On November 16, 2021, Energy Division staff reached out to the PAs to collaborate on revisions to the SGIP M&E plan and requested the PAs submit a revised SGIP M&E plan via a supplemental advice letter.

On January 27, 2022, the SGIP PAs submitted joint advice letter PG&E 4441-G-A/6201-E-A; CSE 127-E-A; SCE 4505-E-A; SoCalGas 5812-G-A (Joint Supplemental) replacing Joint Advice Letter in its entirety.

Subsequently on May 12, 2022, CPUC issued further revisions to the 2021-2025 M&E Plan and approved the Joint Supplemental filing.[5] This revision modified the M&E report schedule which was developed in consultation with the SGIP PAs to accommodate the shortened timeframe for reports scheduled for completion in Q4 2022 through Q2 2023. On May 19, 2022, CPUC issued another revision with the goals of conducting a complete and efficient evaluation process. This revision modified the scope of the Final Program Summary Report to be replaced by two separate report deliverables. The first is the SGIP Distributed Energy Resources Future Program and Policy Report ("DER Futures Report"). The second report will be considered the Final Program Summary report.

On December 12, 2022, the selected evaluator for PY 2021-2023 of the SGIP M&E Plan, Verdant Associates, issued a request to CPUC to change the delivery timelines for some reports of the PY 2021-2023 components of the SGIP M&E Plan due to delays in the request for proposal (RFP) and contracting process. These proposed changes were subsequently reviewed and approved by the Joint SGIP PAs and CPUC.

[5] As clarified in OP 18(d) of D.22-04-036, "Commission Staff are authorized to modify the SGIP 2021-2025 evaluation plan at any time to advance the goals of a complete and efficient evaluation process, including modifying the timing and scope of individual SGIP evaluation reports."

This version of the 2021–2025 SGIP M&E Plan contains all CPUC revisions and represents the final and approved plan as of January 9, 2023.

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 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. For residential legacy fleets, the annual GHG performance by developer for all projects of years one through ten of their SGIP permanency are also required to be included within the M&E plan.

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 and based on a representative sampling of customers. These questions include:

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?

i. The known and expected performance of projects as a source of backup power;

j. GHG emissions impacts;

k. Communities served by the critical facility or critical infrastructure; and

l. Customer coordination with the Office of Emergency Services, the electrical corporation serving the community and relevant local governments.

2. 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.

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:

> (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.

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[6] for M&E activities for PY 2021-2025. This M&E Plan consolidates some of the previously required reports without reducing any of the content. This plan also includes new evaluation content proposed by both the SGIP PAs and Energy Division staff incremental to the previous M&E plan.

- Annual SGIP Impact Evaluations: Collect data, conduct analyses, and provide annual impact evaluations on SGIP for PY 2021-2024 (due November 17, 2023[7] and November 30, 2024-2025). This report contrasts with the previous M&E plan where the annual energy storage impact evaluation was a separately filed report. This all-encompassing impact report covers all technologies incentivized by SGIP. SGIP-funded HPWH impacts will also be measured for the PY

[6] "Deadline" 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.

[7] The first Annual SGIP Impact Evaluation of the PY 2021-2025 SGIP M&E Plan will report the impacts for both PY 2021 and PY 2022. This change was made on December 12, 2022, to accommodate the evaluator for lost time caused by delays in the RFP and contracting processes.

2023 and 2024 reports.[8] Furthermore, these annual impact evaluations will incorporate a new storage market assessment section that will track energy storage market trends and SGIP's role in those trends in addition to evaluating the efficacy and efficiency of the Equity and Equity Resiliency budgets. The PY 2024 and PY 2025 reports will also include generation and HPWH market assessment sections that tracks generation and HPWH market trends. The joint PY 2021 and PY 2022 impact evaluation will also include PY 2020 impact evaluations for non-storage technology types since this material was not covered by the previous M&E plan. The PY 2025 impact evaluation should be submitted as part of the Final Program Summary in 2026. Detailed requirements for these annual impact evaluations appear later in this plan.

- Biannual Fiscal Audit (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 both.

- Review of the Annual Administrative Performance of Each PA (due August 11, 2023[9] and May 1, 2024[10]-2025). These reviews should include at a minimum a survey of program participants' feedback 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. This report will be incorporated in the Final Program Summary for PY 2025. Currently, the third-party evaluator completes this review annually.

    - Review of the Annual Administrative Performance of Each PA for PY 2023 will include new SGIP Program Performance and Process Evaluation (PPPE) content (due May 1, 2024): For the PY 2023 annual PA performance evaluation, a new one-time PPPE content will be additive to the scope of the Review of the Administrative Performance of Each PA. The PPPE will include an evaluation of the overall effectiveness of program design and processes in order to inform ongoing program administration. This will provide the PAs with 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.

- Renewable Fuel Use Reports (RFURs; due April 14, 2023, September 15, 2023, August 31, 2024-2025, and March 31, 2026). As currently required, these reports should include an analysis of renewable fuel use data for SGIP participants.

[8] 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 or PY 2022, thus this M&E plan proposes an evaluation beginning in PY 2023 once there are HPWHs to evaluate.

[9] The first Review of the Annual Administrative Performance of Each PA of the PY 2021-2025 SGIP M&E Plan will report the PA administrative performance for both PY 2021 and PY 2022. This change was made on December 12, 2022, to accommodate the evaluator for lost time caused by delays in the RFP and contracting processes.

[10] The PY 2023 Review of Administrative Performance of Each PA will include a new SGIP Program Performance and Process Evaluation as explained in the sub-bullet point that follows.

- SGIP Distributed Energy Resources Future Program and Policy Report (DER Futures Report; due November 30, 2023). The DER Futures Report shall be conducted as a "blue sky" investigation of optimal program and policy design for DERs. The report will summarize all SGIP reporting metrics to date including statutory program goals and CPUC Decision-based goals. The overarching objective of the report will be to ask the question: based on historic program goals, collected performance data, and future CPUC objectives for DERs, how would the CPUC design the ideal SGIP program or similar DER program and policies if it could start with a blank slate?

- 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 the contents of the Annual Impact Evaluation and Review of Administrative Performance of Each PA 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.[11] D.20-01-021[12] 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:

- The previously separate Annual Energy Storage Impact Evaluation and Biannual Impact Evaluation are now combined as the Annual SGIP Impact Evaluation. This evaluation will cover all SGIP-funded technologies (including HPWHs beginning in PY 2023). Furthermore, the Storage Market Assessment from the previous M&E plan will now be rolled into the Annual SGIP Impact Evaluation and take on a new form. The Storage Market Assessment section will track energy storage market trends and SGIP's role in those trends in addition to evaluating the efficacy and efficiency of the Equity and Equity Resiliency budgets. Generation and HPWH Market Assessment sections that track generation and HPWH market trends will be included in the PY 2024 and PY 2025 impact reports.

- This M&E plan enhances one of the Reviews of Administrative Performance of Each PA by including more detailed Program Performance and Process Evaluation. The scope of the additional Program Performance and Process Evaluation 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 PY 2023 Review of Administrative

[11] *See* D.11-09-015 at 59.
[12] *See* D.20-01-021 at 26.

Performance of Each PA to include Program Performance and Process Evaluation to provide the PAs with recommendations to improve program delivery, while satisfying the requirements of the Decision.

- This M&E plan also introduces the DER Futures Report which aims to answer the following question: based on historic program goals, collected performance data, and future CPUC objectives for DERs, how would the CPUC design the ideal SGIP program or similar DER program and policies if it could start with a blank slate?

- New Developer Fleet storage GHG compliance tracking is required.

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**
Renewable Fuel Use Report No. 31 for Q3 + Q4 PY 2021 and Q1+Q2 PY 2022	April 14, 2023
Biannual Fiscal Audit	June 1, 2023
Review of the Annual Administrative Performance of Each PA for PY 2021 and PY 2022	August 11, 2023
Renewable Fuel Use Report No. 32 for Q3 + Q4 PY 2022 and Q1 + Q2 PY 2023	September 15, 2023
Draft SGIP Distributed Energy Resources Future Program and Policy Report	September 15, 2023
PY 2021 and PY 2022 SGIP Impact Report	November 17, 2023
Final SGIP Distributed Energy Resources Future Program and Policy Report	November 30, 2023
Review of the Annual Administrative Performance of Each PA for PY 2023 including Program Performance and Process Evaluation	May 1, 2024
Renewable Fuel Use Report No 33. for Q3 + Q4 PY 2023 and Q1 + Q2 PY 2024	August 31, 2024
PY 2023 SGIP Impact Report	November 30, 2024
Review of the Annual Administrative Performance of Each PA for PY 2024	May 1, 2025
Biannual Fiscal Audit	June 1, 2025
Renewable Fuel Use Report No 34. for Q3 + Q4 PY 2024 and Q1 + Q2 PY 2025	August 31, 2025
PY 2024 SGIP Impact Report	November 30, 2025
Renewable Fuel Use Report No. 35 for Q3 + Q4 PY 2025	March 31, 2026
Final Program Summary PY 2001-2025	December 31, 2026

Descriptions of Each Report

Review of Administrative Performance of Each PA

These 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.[13] This review, along with the SGIP Performance Audit, will satisfy the requirements of the Decision.

Review of Administrative Performance of Each PA including Program Performance and Process Evaluation

The Program Performance and Process Evaluation is a new addition to the PY 2023 Administrative Performance report and will encompass the scope of the Review of Administrative Performance of Each PA, as well as further determine the overall effectiveness of program design and processes. This 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 recommendations for improved program delivery. The scope of the process evaluations should encompass all aspects of the PY 2023 Review of Administrative Performance of Each PA, 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 enhance one Review of Administrative Performance of Each PA with a Program Performance and Process Evaluation will provide the PAs with recommendations to improve program delivery, while satisfying the decision requirement.

Biannual Fiscal Audit Reports

The Decision requires biannual fiscal audit reports on SGIP.[14] Per the Staff Proposal, these audits should ensure that SGIP funds are accounted for, are being spent appropriately, and that safeguards are in place to ensure both.

Annual SGIP Impact Evaluations

This M&E plan differs from previous practices by requiring SGIP program-wide impact evaluation reports on an annual basis. All SGIP-funded technologies will be covered in these reports. Among the impacts to be assessed on an SGIP-wide annual basis are:

- Electrical energy production and demand reduction by specific time periods (e.g., peak hour as well as seasonal) and by technology category.

[13] D.16-06-055 at 47.
[14] D.16-06-055 at 47.

- Operating and reliability performance characteristics (e.g., capacity factor) for each technology category and how they compare to each other.
- 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
- Energy storage specific impacts:
    - 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.
    - In accordance with Public Utilities Code § 379.6(l)(6), quantify any contribution of energy storage projects to grid services where that storage system 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.
- The impacts for SGIP-funded HPWH include but are not limited to those listed below. Specific evaluation metrics should be developed by the SGIP Evaluator in consultation with CPUC staff:
    - The total GHG emissions reductions achieved by the SGIP-funded load-shifting HPWH, which includes reductions in therms or kWhs
    - The peak reduction benefits compared to a non-load shifting HPWH.

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

- 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.[15]

- 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 that may require measurement and evaluation, including:

- Extent to which energy storage projects facilitate integration of renewable energy resources.[16]

- Extent to which SGIP resources affect the water impacts of grid energy generation.[17]

- Extent to which SGIP resources improve the efficiency and reliability of the transmission and distribution system.[18]

- Extent to which SGIP resources provide ancillary services to the utilities and grid operators.[19]

[15] 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.

[16] 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 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.

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

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

[19] 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.

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,[20] 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.

Regarding the storage market assessment section of the Annual SGIP Impact Evaluations, 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 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 questions for the storage market assessment section. Potential research questions as stated in D.19-09-027 (page 101) include:

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

- 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?

In addition, the storage, generation, and HPWH market assessment sections of the Annual SGIP Impact Evaluations should track energy storage, generation, and HPWH market trends and SGIP's role in those trends. The generation and HPWH market assessment sections that tracks generation and HPWH market trends will be included in the PY 2024 and PY 2025 impact reports.

The Annual SGIP Impact Evaluations must address, at a minimum, all the above bullet points. Energy Division may also recommend that reports consider other research questions.

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.[21]

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 with exception to the RFU report covering Q3 and Q4 of PY 2025, which will be due March 31, 2026.

Final Program Summary Report

By existing statute, SGIP may only continue through 2025.[22] 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:

- 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;

[21] *See* D.16-06-055 at 2.
[22] Public Utilities Code § 379.6(a)(2).

- PY 2025 Review of Administrative Performance of Each PA; and
- PY 2025 Annual SGIP Impact Evaluation.

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.[23] 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.

SGIP Distributed Energy Resources Future Program and Policy Report

The first deliverable will be the SGIP Distributed Energy Resources (DER) Future Program and Policy Report ("DER Futures Report") submitted to the Commission as a draft by September 15, 2023, and as a final report November 30, 2023, in conjunction with the PY 2022 SGIP Impact Report.

A key distinction of the DER Futures Report is that it shall be conducted as a "blue sky" investigation of optimal program and policy design for DERs. The report will summarize all SGIP reporting metrics to date including statutory program goals and CPUC Decision-based goals. The overarching objective of the report will be to ask the question: based on historic program goals, collected performance data, and future CPUC objectives for DERs, how would the CPUC design the ideal SGIP program or similar DER program and policies if it could start with a blank slate? The report should consider a range of program and policy options geared towards maximizing the societal value of DERs all while maintaining affordable rates. Report findings and options should include but not be limited to program and policy options in the areas of incentives, pay for performance, tariffs, grid services, rate structure considerations, and flexible load management. Options to streamline and enhance the administrative efficiency of future programs and policies should be considered. Consideration of DER market assessment factors should also be included.

The scope of this report necessitates a high degree of stakeholder engagement, and several workshops shall be held in the SGIP proceeding to collect input on the scope and methods of the analysis on the front-end, and feedback on the draft findings and recommendations on the back end. Because of the

[23] *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.

proximity of the DER Futures Report to the PY 2022 SGIP Impact Report, the latter report shall be published as an appendix to the DER Futures Report.

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:

- In Renewable Fuel Use Report No. 29, the authors noted that certain blended on-site and directed biogas projects could not have their compliance status determined due to the availability of insufficient data.[24]

- In the 2014-2015 Impact Evaluation Report, a storage vendor provided only anonymized customer data, precluding matching of those customers with utility load data.[25]

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.[26]

All SGIP projects are expected to report data that will allow evaluators to make the findings required by statute and CPUC 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 (PG&E), 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.

[24] Renewable Fuel Use Report No. 29 (November 2020) at 5.
[25] 2014-2015 Impact Evaluation Report (November 2016) at 6-1.
[26] P.U. Code Sec. 379.6(f).