

## Energy Storage Preliminary Monitoring Plan

This document is intended to assist SGIP applicants meet the requirements of the Preliminary Monitoring Plan (PMP) and allow the Program Administrators to determine project eligibility. Applicants are encouraged to use this template to satisfy the PMP requirement. Please see Required Documentation for Reservation Request in the SGIP handbook for more information on the PMP.

**Please complete the following:**

Project Site Address: 123 Main Street, San Diego, CA 92101

Host Customer: John Doe

System Owner: John Doe

Developer: ABC Storage Company

Storage Make/Model: Energy Storage Co, Model 1.0

☒ Paired with and charging at least 75% from onsite renewables (See question 9)

**Please select project type:**

☒ Residential Energy Storage

☐ Non-Residential Storage (<30 kW)

☐ Non-Residential Storage (≥30 kW) (See additional questions 11-13)

**For all projects, please provide the following information:**

- 1) Describe the proposed system; include batteries, inverters, major system components, and their make/model, and quantities.

The PMP should provide a general description of the configuration and layout of the system. Some examples include

“The system is comprised of 2 battery arrays/stacks/towers, a single inverter/converter with integrated charge controller, and a communications gateway...”

“The system is comprised of 2 battery arrays/stacks/towers and a PV array each behind a dedicated inverter/converter with integrated charge controller, as well as a communications gateway...”

- 2) Describe the intended system operation and primary use case at the project site. (In other words, what specific service(s) will the storage system provide to the customer?)

While the system may be capable of multiple operational modes and use cases (which may include back-up operation), it is necessary to identify which of those capabilities will be primarily employed at the site. Some examples include:

“The system is capable of energy arbitrage, demand charge management, shifting excess renewable generation, and back-up operation. The intended or primary operation mode for this site will be to employ the shifting of excess renewable generation by enabling the system to charge when excess generation is available, and to discharge to serve site loads when renewable generation is insufficient or unavailable.”

3) Is there a “back-up only” setting or operational mode available for the storage system, whereby the system will only discharge in the event of a grid outage?

☒ Yes

☐ No

If yes, please explain how you are ensuring that this project will meet SGIP operational requirements, notwithstanding the “back-up only” option, over the 10-year permanency period:

While systems may be equipped with a “back-up only” mode of operation, systems which only operate in this mode are ineligible. It is important to identify how this mode will be disabled or limited in order to ensure the system operates to provide ratepayer benefits over the 10 year permanency period required by the program. An example of language to this effect might be:

“The system has been programed to operate in a non-backup mode as its default operation at the time of installation. The customer has also received documentation which states that exclusive operation of the back-up only mode is prohibited over the 10 year permanency period, per the SGIP handbook requirements.”

4) Please provide a brief description of the existing load at the Site. Describe the source of the fuels that will be displaced by operation of the system (For example, electricity or natural gas provided by the utility).

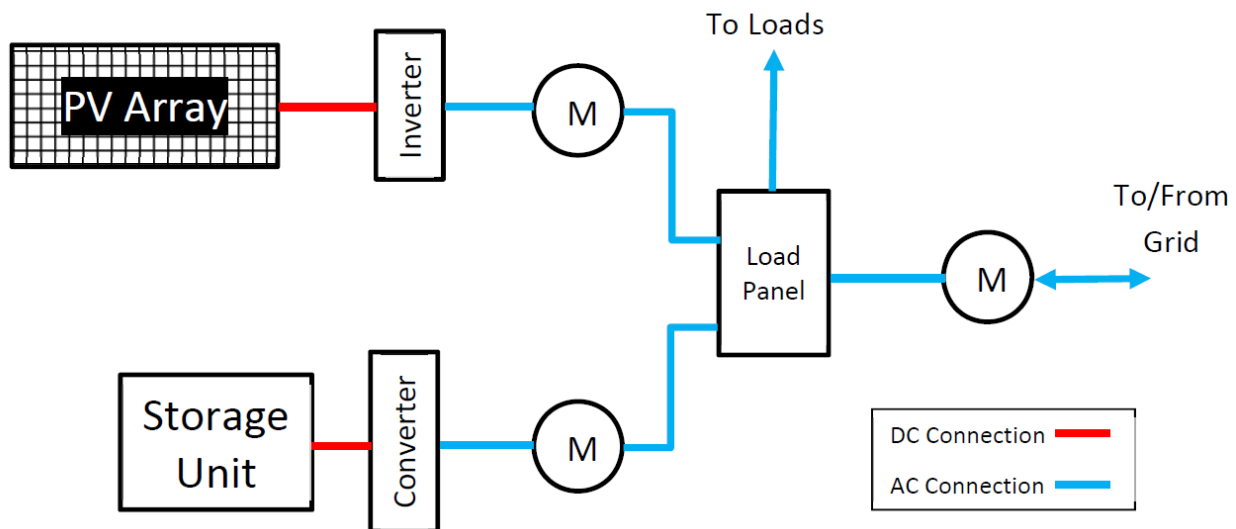
Technical reviewers are looking for a general description of the site loads or specific end uses which are to be displaced by the system’s operation. Examples such as,

“The system is configured to mitigate the demand charge impacts from the trash compactor(s) on site through a dedicated subpanel...”

“The system’s regular operation will supplement whole home energy loads, which include HVAC, lighting, and other miscellaneous plug loads and appliances, as well as serve a critical load subpanel consisting of emergency lighting and refrigeration loads, in the event of a grid outage.”

- 5) Insert a simplified system layout of identifying major components and the proposed metering points at the project site.

Example diagram:



- 6) Describe the metering components of the system, data to be collected at metering points, reasoning behind selected metering locations, and a description of the data acquisition system.

PMPs should identify whether metering points are internal to system components or external equipment, describe the data collected at each point, and why the specific metering points were selected. One example might be:

“The system’s inverters/converters contain channels by which to collect individual performance data of the PV and battery arrays. There will also be an external bidirectional AC meter to collect whole site net energy (kWh) and power (kW) consumption. The internal inverter/converter channels will collect AC instantaneous power (kW) and cumulative energy (kWh) of the PV array and battery array associated with it. The internal channel on the converter of the battery will isolate the battery charge/discharge data from the PV generation, and in conjunction with the data from the channel on the PV inverter, will be used to calculate the percentage of renewable energy charging the battery array. The external meter will be used to confirm combined system performance and energy/cost savings at the site. The data acquisition system (DAS) also uses these metering points to measure and control operation through a communications gateway.”

- 7) Describe the approach for collecting, storing and transferring operational data to the program. Describe the monitoring data source, frequency for collecting data, and the system's data storage capabilities.

The purpose of describing the collection and storage approach is to ensure systems are able to provide the necessary information should it be requested by the SGIP PA within the 5-year period to confirm continued operational requirements. This may include a description such as:

"The described data to be collected, will be time stamped and logged every 15 minutes. The internal storage space of the system can store up to two months of data locally. Every month, the local data is transferred to an offsite "cloud" based server, which can store up to 2 years of operation data, and will be accessible upon request over the 5 year reporting period."

- 8) List the make and model of any external meters, PBI meters or energy management systems to be installed that will log and transmit operational data.

For PBI projects, the make and models of the external meters should be listed on the CEC Solar Equipment List. For non-PBI projects, meters can be integrated into other system components, such as the inverter, and/or a separate external meter. Example descriptions of the metering components may include:

"The system will use the Accuenergy (Make) Acuvim II (Model) PBI approved AC meter to measure and record system power output/input."

"The system will use the internal capabilities of the solar PV inverter to meter the output of the PV system, as well as an Accuenergy (Make) Acuvim II (Model) external meter to measure and record system power output/input."

- 9) **For projects paired with and charging  $\geq 75\%$  from onsite renewables, please provide the following information:** How will the system charge at least 75% from onsite renewables? Describe the anticipated charge/discharge schedule and/or control approach of the storage system and operational mode(s) to be deployed for this project site.

While certain control algorithms may be proprietary, the PMP should at least describe the high-level control approach employed by an algorithm. If being controlled through a set schedule, provide the schedule (days, times, seasons, etc. of charge/discharge). Examples may include:

“The system has been set up to charge at a fixed rate until fully charged or until the end of the charge period. Charging is set to occur during the production periods of the onsite generator between the hours of 11:00AM and 4:00PM daily, year-round. The system has been set to discharge between the hours of 4:00PM to 8:00PM daily, year-round. The system will discharge up to the needed net load served or maximum output until the end of the discharge period or until it has reached the lower limit state of charge.”

“The system uses a proprietary control algorithm which uses the metering points to identify periods of excess renewable generation, and signals the system to charge to maintain zero or minimal excess generation until fully charged. Only when necessary to maintain a minimum level of charge for battery health will the system charge from the grid if excess solar is unavailable. The system is set to discharge when net load is above a specified demand (kW) limit, and will discharge up to the net load above this limit or its maximum output until the lower limit state of charge is reached. This algorithm will be enabled at least 6 days a week, year-round.”

- 10) Who will be responsible for transmitting operational data to the program?

This should identify which party will be sending signals or manually controlling the storage unit to charge/discharge either through selecting operational modes (remotely or on the system) or programming schedules.

**For non-residential projects 30kW+, please provide the following information:**

11) Are the meters listed on the [CEC Solar Equipment list](#)?

☒ Yes

☐ No

12) Performance Data Provider (PDP)

If known at the time of reservation request, the PDP identified should be found on the approved list (<https://www.selfgenca.com/documents/pdp/approved>) or will have applied to become a PDP and approved before incentive claim.

13) How will the storage system's operational data be transferred to the PDP for monthly reporting?

This should identify the approach for transfer of data and frequency of reporting to PDP. Examples might be:  
"The system includes a communications gateway device with internet capability (cell modem), which will transfer the performance data to the PDP daily. This data is stored by the PDP, and transmitted to the program administrator monthly."