

## 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 2017 Handbook section 5.4.1 for more information on the PMP.

**Please complete the following:**

Project Site Address:

Host Customer:

System Owner:

Developer:

Storage Make/Model:

**Please select project type: (Choose Appropriate)**

Storage (<30 kW) – Paired with and Charging at least 75% from Onsite Renewables

Storage ( $\geq 30$  kW) – Paired with and Charging at least 75% from Onsite Renewables

Storage ( $\geq 30$  kW) – Stand Alone or Charging less than 75% from Onsite Renewables

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

1) Describe the proposed system, including major system components.

The system is composed of (1, 2, 3...) Sol-Ark hybrid inverters, (XX) kW of PV modules and a (XX) kWh battery bank. The system is grid connected via the Sol-Ark inverter which manages the power flow between the renewable generation/storage, home loads and the utility. The system is designed to disconnect from the utility upon outages in accordance with UL1741 SA and continue to power critical loads. All monitoring is handled through the PowerView Pro application, which can be accessed via an internet browser or smart device.

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?)

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. In the event of a utility outage, the system is capable of islanding to power critical loads using renewable generator and/or storage.

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:

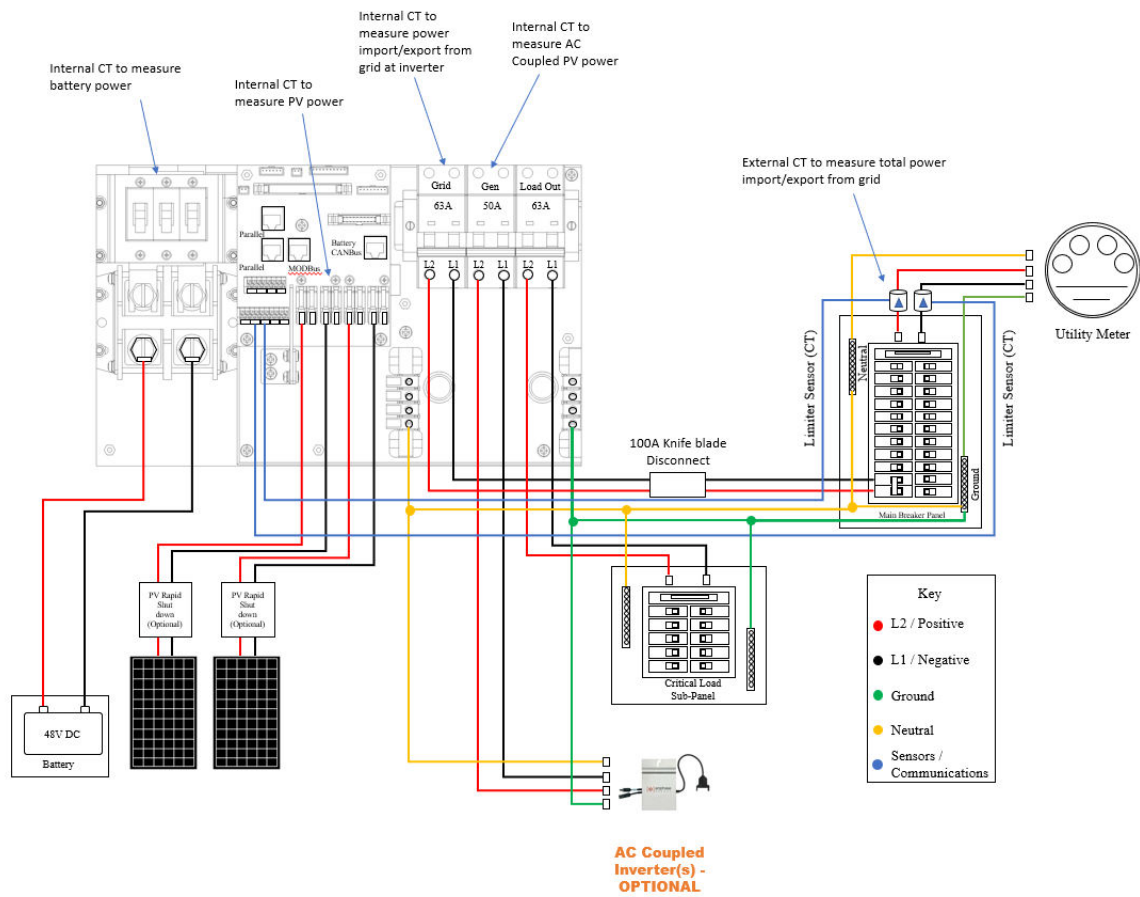
The system has been programmed to operate in a non-backup mode as its default operation at the time of installation. The system can be locked out from any further changes by the end user after programming for non-backup mode.

- 4) Describe the existing load to be displaced by storage system operation. (Choose Appropriate)

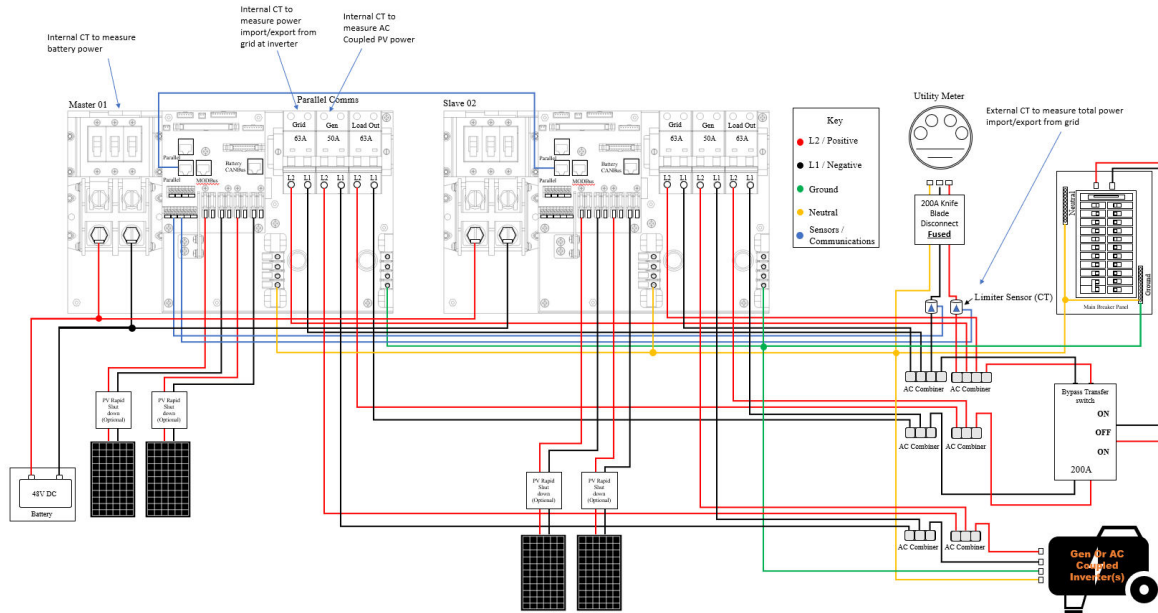
The system has been installed and configured such that the whole home demand will be supplemented by the ESS during normal operation (OR such that the whole home will be powered by the ESS during the peak rates and via utility power at all other times). In the event of a grid loss, only those loads in the critical loads panel, powered directly by the

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

Sub-Panel Back-Up Configuration



## Whole Home Backup Configuration



Other diagrams available by request.

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.

Data is collected by the Sol-Ark inverter using current transformers (CTs) both internal and external to the system. For DC input from PV and batteries, the Sol-Ark has bidirectional measurement capability for any power input or exported. Similarly, the Sol-Ark features bi-directional CTs to measure input/export interaction with the utility at the grid connection of the inverter. Finally, a pair of external CTs are installed on the load side of the service meter to measure net power flow to/from the utility which allows the Sol-Ark to account for any loads on the line side of the system. The measured data at these points allows the Sol-Ark to calculate total load demand of the site.

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.

Collected data is time stamped and exported to an offsite cloud server at intervals of 5 minutes. Offsite servers can store 25+ years of system operation. Data can be accessed using the PV Pro platform by Inteless using either a web browser or smart device app.

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

No external equipment is necessary to log and transmit data.

**For projects paired with and charging  $\geq 75\%$  from onsite renewables, please provide the following information:**

- 9) 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. (Choose Appropriate)

The Sol-Ark system will use metering points to measure power consumption for the site and send excess renewable generation to charge the batteries. During instances where system loads exceed renewable generation, the Sol-Ark will (utilize only as much grid power is necessary to meet site demand and only discharge in emergency insances OR discharge the necessary battery power to meet site demand).

Grid charging of batteries can be disabled entirely using software and the system locked to prevent changes.

- 10) Who will operate the system? I.e.: Developer, Manufacturer, Host Customer, System Owner (if different from Host Customer)

System owner

**For projects  $\geq 30$  kW only, please provide the following information:**

- 11) Are the meters listed on the Go Solar California [database](#)?

Yes

No

- 12) Performance Data Provider (PDP)

System owner

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

Relevant data will be exported from the PV Pro platform and presented in a format consistent with reporting requirements for the SGIP program.