Preliminary Monitoring Plan (PMP)Template

When completing the Reservation Request during step 1 of the application process, a Preliminary Monitoring Plan (PMP) will be required for all non-residential project, >=30kW. The PMP outlines how you plan to monitor the performance of your self-generation project, including production, emissions and efficiency.

ETB has created this PMP template to assist clients in completing this requirement. Examples and suggested answers are provided below, but should be customized to reflect the specific project design.

Please refer to the most current SGIP Handbook for more information regarding the PMP requirements.

You will be asked to complete the following:

Project Site Address:

Host Customer:

System Owner:

Developer:

Storage Make/Model:

You will select the project type:

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

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

☐Storage (≥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.

*****Based on site specific parameters, should be defined for every unique system.*****

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

EXAMPLE: The system is comprised of 2 battery arrays/stacks/towers, a single inverter/converter with integrated charge controller, and a communications gateway…

EXAMPLE: 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…

TESLA EXAMPLE: The system is comprised of a NEMA3R enclosed Tesla Megapack 2XL battery, including an integrated PCS and battery management system.

BYD EXAMPLE: The system is comprised of a NEMA3R enclosed BYD CHESS battery, including an integrated PCS and battery management system.

SOCOMEC EXAMPLE: The system is comprised of a NEMA3R enclosed PCS and a NEMA3R enclosed battery cabinet(s), including an integrated battery management system.

SOLARK EXAMPLE: The system is comprised of a NEMA3R enclosed PCS and a NEMA3R enclosed battery cabinet(s), including an integrated battery management system.

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?)

EXAMPLE:

System is capable of:

- Energy arbitrage
- Demand charge management (peak shaving)
- Self-consumption (to prevent energy exports to the grid)
- Compliance and warranty reporting
- Demand response
- Back-up power/microgrid***
- **Tesla Specific:** Self-consumption (to prevent energy export to the grid)
- **BYD Specific:** Not capable of self-limiting export and not capable of islanding
- **SOCOMEC Specific:** Installer needs to choose either no import, no export or no exchange. Capable of islanding/micro-grid.
- **SOLARK Specific:** Installer needs to choose either no import, no export or no exchange. Capable of islanding/micro-grid.

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:

If Yes: 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 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:

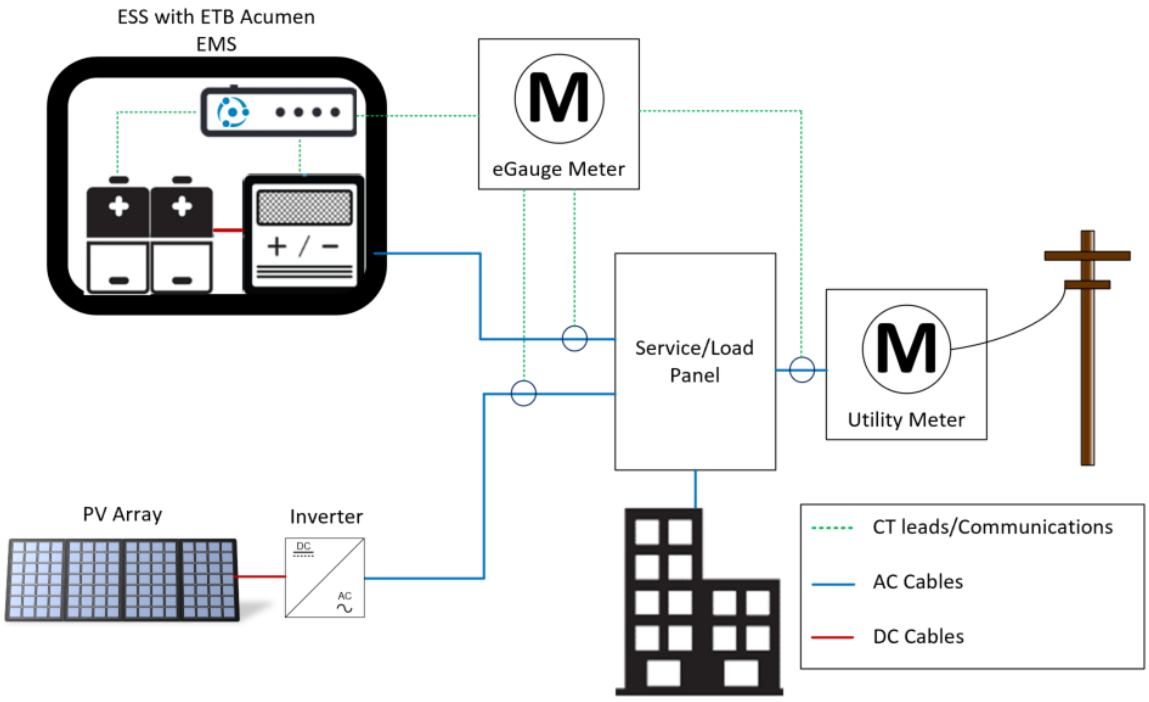
EXAMPLE: The system has been programed to operate in a non-backup mode as its default operation at the time of installation. The customer has also received documentation which states that exclusive operation of the back-up only mode is prohibited over the 10-year permanency period, per the SGIP handbook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

4) Describe the existing load to be displaced by storage system operation.

EXAMPLE: The system is designed to meet and adapt to the site-specific load patterns to mitigate peaks, shift energy to non-peak periods, limit export (if applicable), and manage GHG signals to ensure maximum bill optimization is achieved in a compliant fashion.

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

EXAMPLE BELOW. Please refer to your product manufacturer documentation to develop a diagram that reflects your actual site design.



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.

EXAMPLE: There will be external *(insert meter manufacture name here)* meters to collect on-site net energy (kWh) and power (kW), solar generation, (kWh) and power (kW), and energy storage charge and discharge (kWh) and power (kW). Each meter can measure a single location and includes CT's for the amperage and reference voltage inputs, installed in a custom enclosure. The meters are used to confirm input/output from each measured point and the Acumen EMS uses these to control operations of the system. The datapoints are reported up to the cloud server and are visible to the user with data logged for the lifetime of the contract.

TESLA EXAMPLE: There will be external SEL-735 meters to collect on-site net energy (kWh) and power (kW), solar generation, (kWh) and power (kW), and energy storage charge and discharge (kWh) and power (kW). Each meter can measure a single load and includes CT's, PT's for the power and reference voltage inputs, installed in a custom enclosure. The meters are used to confirm input/output from each measured point and the Acumen EMS uses these to control operations of the system. The datapoints are reported up to the cloud server and are visible to the user with data logged for the lifetime of the contract.

.

Question 6 continued….

BYD EXAMPLE: There will be external eGauge SGIP certified meter(s) to collect on-site net energy (kWh) and power (kW), solar generation, (kWh) and power (kW), and energy storage charge and discharge (kWh) and power (kW). Each meter can measure loads that are of the same voltage as powers the meter(s) and includes three (3) CT's for each leg of the power inputs. Each is installed in a custom enclosure. The meters are used to confirm input/output from each measured point and the Acumen EMS uses these to control operations of the system. The datapoints are reported up to the cloud server and are visible to the user with data logged for the lifetime of the contract.

SOCOMEC EXAMPLE: There will be external Digiware SGIP certified meter(s) to collect on-site net energy (kWh) and power (kW), solar generation, (kWh) and power (kW), and energy storage charge and discharge (kWh) and power (kW). Digiware Module C-30 is the communication module that allows the I-35 (current module) and the U-30 (voltage module) to report data to the PCS. I-35 modules use three (3) certified CTs to measure the current. The meters are used to confirm input/output from each measured point and the Acumen EMS uses these to control operations of the system. The datapoints are reported up to the cloud server and are visible to the user with data logged for the lifetime of the contract.

SOLARK EXAMPLE: There will be external eGauge SGIP certified meter(s) to collect on-site net energy (kWh) and power (kW), solar generation, (kWh) and power (kW), and energy storage charge and discharge (kWh) and power (kW). Each meter can measure loads that are of the same voltage as powers the meter(s) and includes three (3) CT's for each leg of the power inputs. Each is installed in a custom enclosure. The meters are used to confirm input/output from each measured point and the Acumen EMS uses these to control operations of the system. The datapoints are reported up to the cloud server and are visible to the user with data logged for the lifetime of the contract.

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.

ANSWER: Data will be time stamped and logged every 15-minutes. The internal storage of the system can store up to 1 month of data locally. The data is transmitted to the cloud when an internet connection is active which can store 10+ years of operation data and will be accessible upon request over the 5-year reporting period.

8) List the make and model of the external meters or energy management system 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 California Energy Commission approved Solar Equipment List. Example descriptions of the metering components may include:

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

TESLA EXAMPLE: Make: Schweitzer Engineering Laboratories, Model: SEL-735

BYD EXAMPLE: Make: eGauge, Model: 4015 or 4030

SOCOMEC EXAMPLE: Make: Digiware, Model: I-35

SOLARK EXAMPLE: Make: eGauge, Model: 4015 or 4030

For projects paired with and charging ≥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.

ANSWER: The Acumen EMS uses proprietary control algorithms using the aforementioned metering points to identify when the battery can effectively be charged from renewable energy without impacting the bill optimization strategy in real-time. In extreme circumstances the Acumen EMS may charge from the grid only if the battery health is in jeopardy and requires a specific minimum SOC to be maintained and solar generation is unavailable due to any number of circumstances (PV offline etc.). The system will then dispatch this energy when it makes the most economic sense for the specific customers tariff or if a demand response event is called.

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

ANSWER: The system is controlled automatically by the Acumen EMS within the set optimization and operations strategy. In some cases, the Asset Manager or 3rd party demand response provider or Utility may send a signal to dispatch during a demand response event.

For projects ≥30 kW only, please provide the following information:

11) Are the meters listed on the CEC Solar Equipment database?

☒ Yes

☐ No

12) Performance Data Provider (PDP)

ANSWER:

Energy Toolbase Software, Inc.

Beth Nolan

sgip@energytoolbase.com

(252) 318-3646

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

ANSWER: The Acumen EMS includes a communication gateway device with internet capability (LAN, Cell or Wifi), which will transfer the sites performance data to Energy Toolbase in real-time. The data is stored in the cloud on a redundant AWS and transmitted to the Program Administrator monthly based on PA guidelines/requirements.