SYSTEM DESCRIPTION:
A 3.68 MW SOLAR PV MICROGRID SYSTEM PAIRED WITH, 9.6MWh BATTERY SYSTEM. PLEASE SEE E1.0 FOR SYSTEM PERFORMANCE AND APPLICATION DETAILS.

Project:

Project Details:

Engineering Approval:

REVISIONS

DESCRIPTION	DATE	REV

Sheet Title:
PLOT PLAN

Sheet Number:
P1.0

Sheet Size:
ARCH D - 36" x 24"

DESIGN & DRAFTING BY:

SepiSolar
POWER BY DESIGN

Reviewed & Approved by:

NABCEP CERTIFIED PV Installation Professional

BATTERY INVERTER OPERATION NOTES:

2.2.1 Self-consumption

A self-consumption installation is understood to be a system interconnected to the public grid that seeks to minimize grid consumption and to increase self-supply. To do so, it may be equipped with photovoltaic generation and storage devices.

The INGECON SUN EMS PlantController shall manage the devices in the installation based on the following principles:

- If the grid is available, priority is given to the use of photovoltaic power to supply the loads and to charge the battery. The injection of excess photovoltaic power into the grid is user configurable.
- If the photovoltaic power is insufficient to power loads, then the battery shall provide the remaining power.
- If the sum of the photovoltaic power and the battery power is insufficient to power the loads, then the grid shall provide the remaining power.
- Once the user-set SOCdescx value has been reached, then the power supply from the battery shall not be restarted until SOCrecx status has been achieved. This prevents excessive battery cycling, extending its useful life.

2.2.2 Back-up or UPS

The back-up strategy shall be used for self-consumption installations in which, in the event of a power outage from the public grid, the STORAGE inverter generates the network. The same strategy is applicable to weak distribution networks in which the loads need to be powered from a STORAGE system in order to guarantee supply.

The INGECON SUN EMS PlantController shall manage the installation devices based on the following principles:

- If the grid is available, priority shall be given to the use of photovoltaic power to supply the loads and charge the battery. The injection of excess photovoltaic power into the grid is user configurable.
- If the photovoltaic power is insufficient to power loads, then the battery shall provide the remaining power.
- If the sum of the photovoltaic power and the battery power is insufficient to power the loads, then the grid shall provide the remaining power.
- If there is no external power grid, then the STORAGE inverter shall generate the internal network, both networks shall be decoupled from each other, by opening the contactor.
- Once the user-set SOCdescx value has been reached, then the power supply from the battery shall not be restarted until SOCrecx status has been achieved. This prevents excessive battery cycling, extending its useful life.
- If the grid is down, then the STORAGE inverter shall power the loads until the battery has discharged down to the SOCdescx value. At this point, it will not be possible to power the loads until the grid has been restored.

2.2.3 Peak shaving:

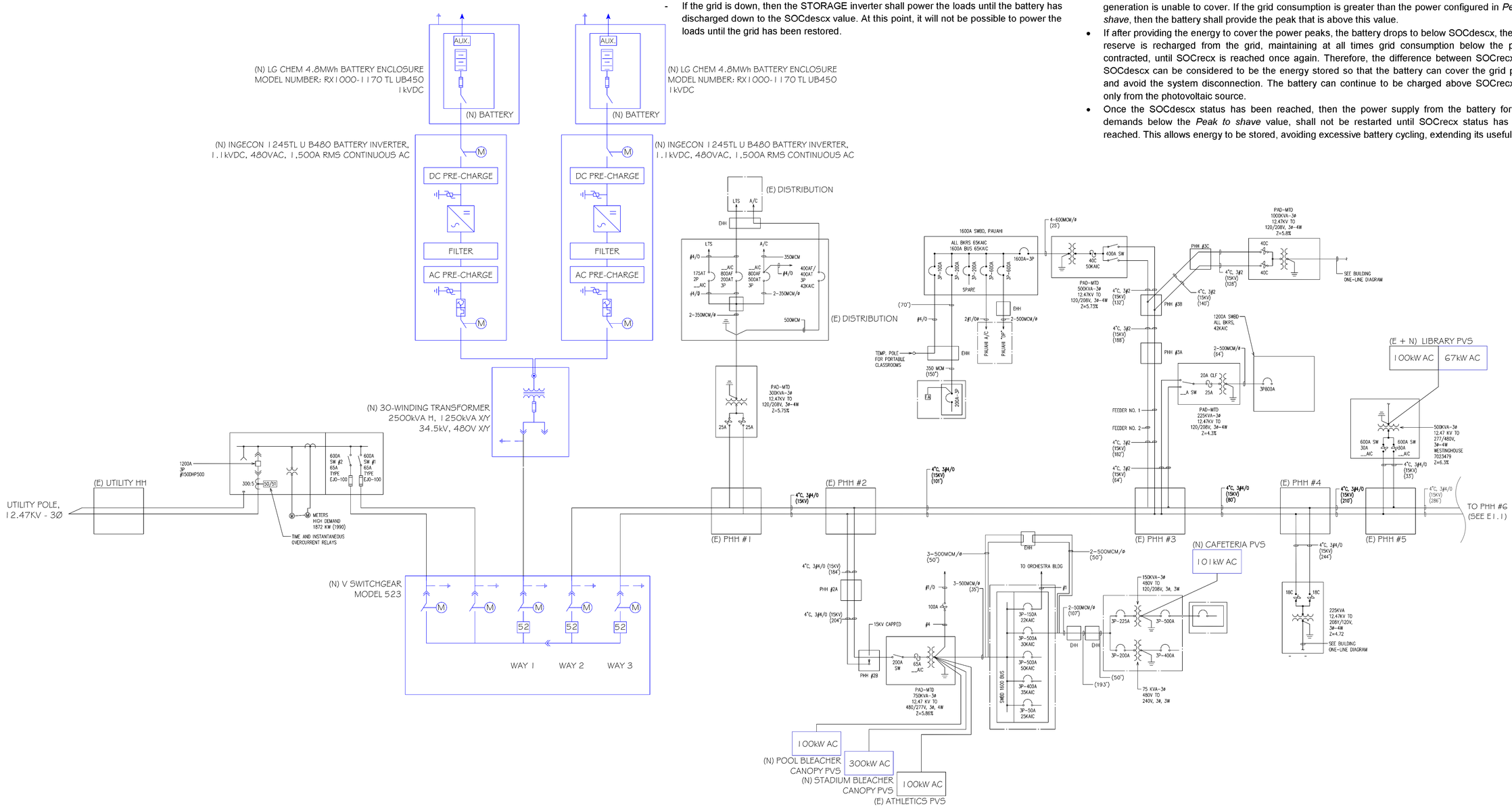
The energy stored in the batteries can be used to reduce load peaks, in those installations with loads connected to the system. This makes it possible to maintain the contracted power below that required at the installation.

Whenever the installation loads are greater than the *Peak to shave* value, then the INGECON SUN EMS PlantController shall use the battery reserve to cover this excess demand, thereby avoiding the disconnection of the installation for exceeding the power contracted. A power reserve needs to be maintained in the batteries in order to allow the peak-shaving functionality to adapt to the frequency and duration of the load peaks at the installation. Its value is determined by the difference between SOCps and SOCmin.

The difference between the contracted power and the *Peak to shave* value configured shall make it possible, in certain circumstances, to recharge the reserve dedicated to providing power during load peaks.

The energy flows in the installation shall be managed in accordance with the following principles:

- Priority is given to the use of photovoltaic power to supply the loads and charge the battery. The injection of excess photovoltaic power into the grid is user configurable.
- If the photovoltaic power is insufficient to power the loads, and the battery SOC is greater than the SOCrecx value, then the battery shall provide the remaining power.
- If the battery SOC is below the SOCrecx value, then the grid shall power the load that the photovoltaic generation is unable to cover. If the grid consumption is greater than the power configured in *Peak to shave*, then the battery shall provide the peak that is above this value.
- If after providing the energy to cover the power peaks, the battery drops to below SOCdescx, then the reserve is recharged from the grid, maintaining at all times grid consumption below the power contracted, until SOCrecx is reached once again. Therefore, the difference between SOCrecx and SOCdescx can be considered to be the energy stored so that the battery can cover the grid peaks and avoid the system disconnection. The battery can continue to be charged above SOCrecx, but only from the photovoltaic source.
- Once the SOCdescx status has been reached, then the power supply from the battery for load demands below the *Peak to shave* value, shall not be restarted until SOCrecx status has been reached. This allows energy to be stored, avoiding excessive battery cycling, extending its useful life.



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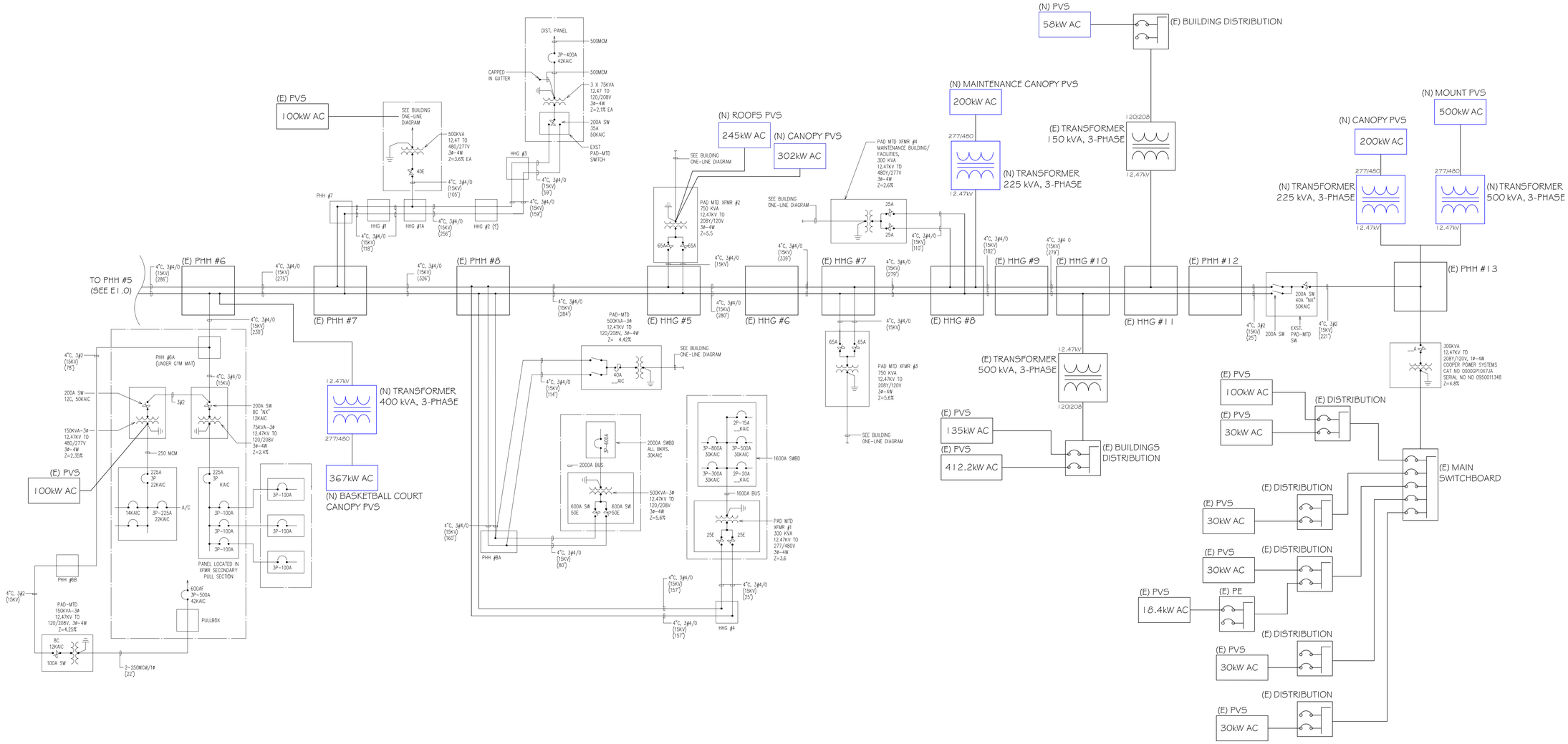

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