Energy Storage System Project Pre-commissioning Checklist

Version information

Serial number	Change details	Organizer	Version	Change date	Release date
01	New formulation	Grey Jiang	1.0	November 1, 2024	November 1, 2024
02					
03					
04					
05					

Basic Information

Project Information			
Project Name		**Customer**	
EPC		**Site Identifier**	
PM Contact Info (if any)			
Project Location			
Product Information			
Powerstack Unit			
Battery Unit Type		**Powerstacks Unit SN**	
PCS Unit type			
Attachments – Photos of the Battery Container's Nameplate			
Attachments – Photos of the PCS and Transformer Nameplate			
LC Unit			
Local Controller type		**Local Controller SN**	

EMS Unit (optional)			
EMS type		**EMS SN**	
Attachments – photos of the LC nameplate			

The purpose of this document is to offer guidance to the scope of work and construction progress that needs to be completed prior to Powerstacks commissioning. This document is not a replacement of the installation manual or the operation manual. Detailed installation and operation procedures as well as the safety precautions as prescribed in the manuals shall be followed. Customers are encouraged to establish early contact with Sungrow Service department at https://en.sungrowpower.com/OnlineService to coordinate the project schedule and facilitate the project commissioning process.

A. Introduction

This document's purpose is to provide additional guidance on the scope of work and construction progress that **must be completed prior to the arrival of a Sungrow service engineer to begin BESS commissioning.** This document does **not** serve as a replacement for either the installation or operation manuals. Installation, operation, and safety precautions must be performed in accordance with the manuals.

To coordinate the project schedule and facilitate the project commissioning process, customers must contact Sungrow Service at https://en.sungrowpower.com/service

Customers are encouraged to make early contact for scheduling purposes.

B. List of Checklists

This pre-commissioning checklist document comprises the following checklists:

1. Grievance Against Supplier Checklist
2. Battery Unit & PCS Checklist
   2.1.Mechanical Interface
   2.2.Electrical Interface
   2.3. FFS (Fire Safety System and Fire Labeling)

Please note that not every item on these Checklists applies to every product (e.g., gas cylinders), therefore certain items may be skipped if they are not applicable.

1. Grievance Against Supplier Checklist

Customer to check the applicable boxes below, and the Supplier will use this pre-commissioning checklist form to plan and perform commissioning and rework as needed.

☐ Battery module to battery module DC connections were not received by EPC and have thus not been installed.

- Issue (strike irrelevant): missing/ disconnected /damaged and unsafe / _____

☐ Battery module to battery module communication connections are not in place (comes pre-installed)

- Issue (strike irrelevant): missing/ disconnected /damaged and unsafe / _____

☐ Battery modules have obvious visual issues

- Issue (strike irrelevant): missing/ leaking/ damaged and unsafe/ mounting bolts missing/ _____

☐ Missing nameplate _____

☐ Others _____

This pre-commissioning check list applies to the entire site unless negotiated with Sungrow project manager and subject to the sole discretion of the Sungrow Project Manager and any applicable contractual relief. Where approved by the Sungrow Project Manager partial site commissioning by functional circuit containing significant quantities of blocks may be allowe

2. Battery Unit & PCS Checklist

2.1. Mechanical Interface:

- ☐ Visual inspection for damages, including container, RACK, PCS, LCS, and PMD (physical, bent, rusty, etc.)
- ☐ Door movement mechanical test latch mechanical test whether the door can open and close smoothly and the latch is in good condition.
- ☐ Packaging removed (e.g., silica gel bags, dust seal tape on the outside)
- ☐ Gland plate(s) installed, and conduits sealed
- ☐ All load bearing cushions meet the ground interface
- ☐ All designated points for mounting are either welded or bolted per Suppliers drawings
- ☐ Situation is not unsafe (e.g., standing water, open trenches)
- ☐ Shipping dust covers removed
- ☐ Provided accessories installed, and compare with the shipment list
- ☐ Sufficient and safe clearance access service areas (typically the door sides and service hatches)
- ☐ No sundries are left on top or inside of BESS container
- ☐ Check container bottoms and pipes and battery surfaces for coolant leaks, all connectors are tight.
- ☐ Check the tank of LCS to ensure that the liquid level is in normal condition
- ☐ Check whether the Coolant pipeline is in good condition. Including whether the clamp at the connection of the pipeline is tight, whether there is leakage at the connection of the pipeline

2.2. Electrical Interface:

- ☐ Check if all communication cable and power cable have connected well. Cables are well insulated and appropriately sized
- ☐ Ensure all fuses/SPD have been installed well and cable connector are tight
- ☐ Check the DC power cables between PCS and PACK, PACK and PACK are installed correctly and firmly, and the fuse between PACK is correctly installed
- ☐ Grounding cables installed correctly, and cable material and resistance value qualified (If not required by local regulations, Sungrow advises ground resistance should be no more than 4 Ω)
- ☐ Communications connections ready (connected, correct terminals or pin outs, communications tested from outside device to electrical interface)
- ☐ Verify all switches and breakers are in open status, and its mechanical function is correct
- ☐ Power cables are routed in a safe place and/or protected against mechanical damage
- ☐ Check the AC connections and phases sequence, ensure the phase sequence is correct and the AC cable tightening torque is 40N·m
- ☐ Verify UPS is in good condition without any damage and confirm the battery level. (Check if the battery cables need to be reconnected)
- ☐ After the cable is installed, check whether the bottom cable hole is blocked

2.3. FFS (Fire Safety System and Fire Labeling)

- ☐ Check whether the appearance and installation of FSS components are well (e.g., Fire detector, Fire detection pipe)
- ☐ Check whether the explosion vent plate is properly installed
- ☐ Check whether the pressure gauge pointer of the fire cylinder is in normal areas to ensure that the gas in the cylinder has not leaked or erupted
- ☐ If EPC drawings show external water a pipe connection between the BESS and a Siamese or FDC or a Pump system, then, the same must be installed on site Site commissioning is required on the following complete functional circuits containing, PCS's, Local controllers, and Battery Units:

On behalf of the customer (to be filled on or thereabout the date pre-commissioning is complete and transmitted to Sungrow)

Name (Customer's Representative):

*Customer's Representative can be either EPC/Self

Signature: _____

Date: _____

**Customer initial also required on page six (6) **

[i] OTDR test is advised for fibre connections. To ensure correct attenuation filters are applied and communications are unlikely to delay commissioning we recommend an IP test between the copper ethernet portion of the LC200 and the EMS (thus the filters are checked, the fibre is good and all conversions to the EMS are in place and good). For copper ethernet connection other test methods should be used. For ease of communicating expectations, we address both here. The other Ethernet cables may be tested in a similar fashion just so long as it's clear we need the network ready to go and all Sungrow needs to do is setup the internal IP addressing in the local controller.