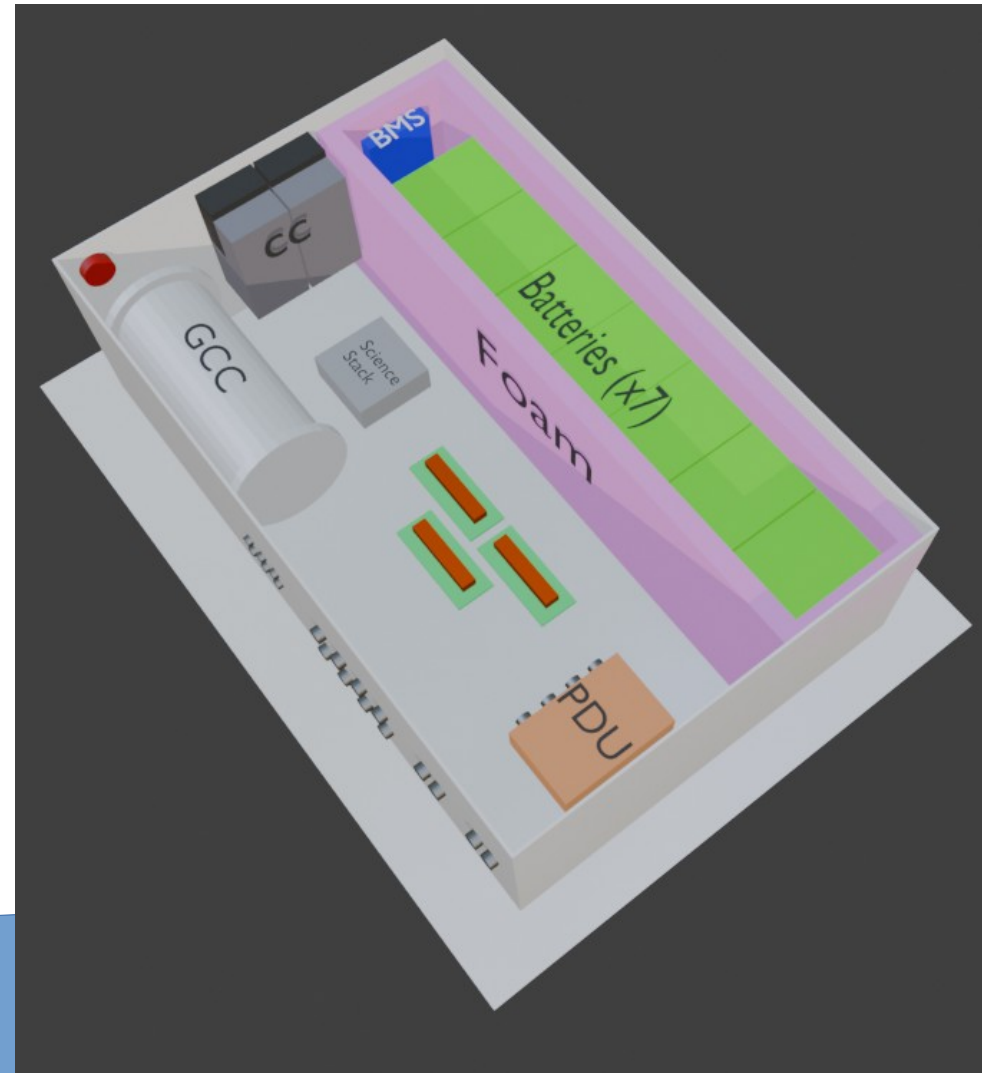


PBR power system update

- Incorporated Charge Controllers and GCC inside battery enclosure for EMI reduction
- Included space for 7 batteries for PBR flight
- Box size is now 66"L x 42"W x 20"H (1.67m x 1.066M x 0.5m)



Timeline

| | 2025 | | | | | | | | | | | |
|---------|-----------------------------------|----------|-------|---|-----|------|------|--|-----------|-----------------------------------|---------------------------------|----------|
| | January | February | March | April | May | June | July | August | September | October | November | December |
| Mines | Procuring PS components | | | | | | | Electrical Build of PS (Internal to Box) | | | | |
| | First Draft of ICD | | | | | | | | | | Finalize ICD and Current Limits | |
| Chicago | Development of Solar Array Design | | | Development of Battery Box Enclosure Design | | | | Fabrication of Battery Box Enclosure | | Delivery of BB Enclosure to Mines | | |

| 2026 | | | | | | | | | | | | |
|-------|---|----------------------|--------------------------|-----------------------------|-----|-------------|------|--------|--|-----------|----------------|----------|
| | January | February | March | April | May | June | July | August | September | October | November | December |
| Mines | Mechanical Integration into Battery Enclosure | Power System Testing | Integration with Payload | Final Electrical Testing | | Field Tests | | | Shipment of Battery Enclosure to Palestine | Hang Test | Shipment to NZ | |
| | Build Ground Solar Charging Station for FT | | | Test Solar Charging Station | | | | | | | | |

| Component | Manufacturer | Status |
|---------------------------|-------------------------|---|
| Solar panels | SBM Solar Inc. | Purchased, ETA to Chicago 07/01/2025 |
| Charge Controller | Morningstar-MPPT60 | Arrived at Mines, Currently being modified for Flight. |
| PDU | Data Device Corporation | In procurement stage |
| Batteries | ???????????? | ???????????????? |
| Battery Management System | ???????????? | ???????????????? |

Battery Options

- **Option 1- Have CSBF purchase the batteries for both science flights and for the SIPs:**
- **Pros:**
 - We know the batteries and interfaces
- **Cons:**
 - CSBF would have to agree to this along with all the science flights
 - CSBF will not purchase batteries this year.
 - The supplier may not choose to sell them to us anyways.
- **Option 2- Move to a different battery manufacturer:**
- **Pros:**
 - We can get the batteries cheaper and quicker.
- **Cons:**
 - We would have to redesign the interfaces to the battery management system and the new batteries
 - We would have to do more extensive testing for batteries that do not have flight heritage.

Battery Comparison

| | Valence U27-88XP | GTES GT24V100-CAN-A20 |
|--|----------------------------------|-------------------------------------|
| Rated Capacity: | 88Ah | 100Ah |
| Nominal Voltage: | 25.6 | 25.6 |
| Max Charge Voltage: | 29.2 | 29.2 |
| Discharge Cutoff: | 20 | 20V |
| Max Charge Current: | 88A | 100A (Nominal 50A) |
| Max Continuous Discharge Current: | 264A | 200A |
| Weight: | 44.4lbs | 47.1lbs |
| Dimensions (L*W*H): | (225mm x 172mm x 306mm) | (271mm x 187.96mm x 365.76mm) |
| Cycles: | 4000+ cycles | 6000+ cycles |
| Price: | (2500 processing fee) + ???????? | Request for quote |
| BMS: | BMS-MH-11 | Internal BMS with CANBus Monitoring |

Connector List and ICD on PS Wiki

Interfaces and Wiring Diagrams

The Interface Control document for the Battery Enclosure to the Gondola is linked here:

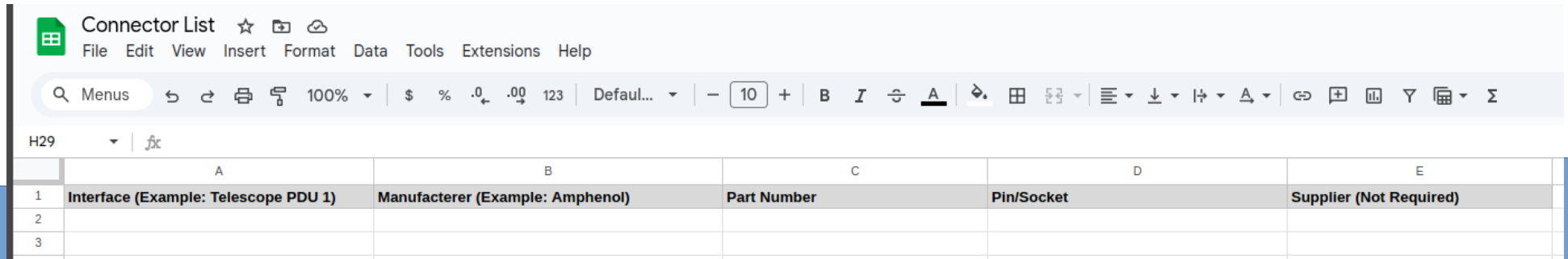
- [ICD](#)

The connector list for procurement is at the link below:

- [Connector List](#)

The template for wiring diagrams is here:

- [WD_Template.odp](#)



The screenshot shows a Google Sheets spreadsheet titled "Connector List". The interface includes a menu bar (File, Edit, View, Insert, Format, Data, Tools, Extensions, Help) and a toolbar with various editing and formatting tools. The spreadsheet has a grid with columns labeled A through E. The first row (row 1) contains headers: "Interface (Example: Telescope PDU 1)", "Manufacturer (Example: Amphenol)", "Part Number", "Pin/Socket", and "Supplier (Not Required)". Rows 2 and 3 are currently empty.

| | A | B | C | D | E |
|---|--------------------------------------|----------------------------------|-------------|------------|-------------------------|
| 1 | Interface (Example: Telescope PDU 1) | Manufacturer (Example: Amphenol) | Part Number | Pin/Socket | Supplier (Not Required) |
| 2 | | | | | |
| 3 | | | | | |