# Technical Note – Sigen Battery 100% Depth of Discharge

## 1. Introduction

Traditional Home ESS designs limit the battery usage range (for example, from 10% to 90% State of Charge), which not fully utilized the battery's performance and value invisibly. In contrast, Sigenergy system allows users to safely utilize the battery from 0% to 100% State of Charge, thus achieving a larger actual usable capacity.

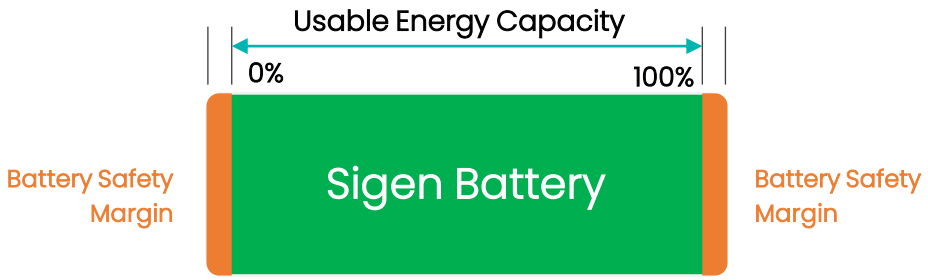
## 2. 100% DoD of Sigen Battery

Sigenergy provides end users with full 100% Depth of Discharge (DoD) access and recommends setting the discharge cut-off State of Charge (SoC) to 0%. This allows users to maximize the utilization of the usable energy capacity of the battery.

| Battery Module | Usable Energy Capacity | Depth of Discharge |
|---|---|---|
| SigenStor BAT 5.0 | 5.2 kWh | **100%** |
| SigenStor BAT 6.0 | 5.84 kWh | **100%** |
| SigenStor BAT 8.0 | 7.8 kWh | **100%** |
| SigenStor BAT 10.0 | 8.76 kWh | **100%** |

### 2.1 Battery Safety Margin

Traditional Home ESS limit the battery's usable range due to Battery Management System (BMS) limitations, posing high risks of overcharging and overdischarging. In contrast, the actual physical capacity of Sigenergy battery cells exceeds their nominal capacity at the time of factory shipment, with a safety buffer already reserved. This means that even when the system shows 0%, the battery is still far from reaching its physical depletion limit, fundamentally eliminating the risk of damage caused by deep discharge.

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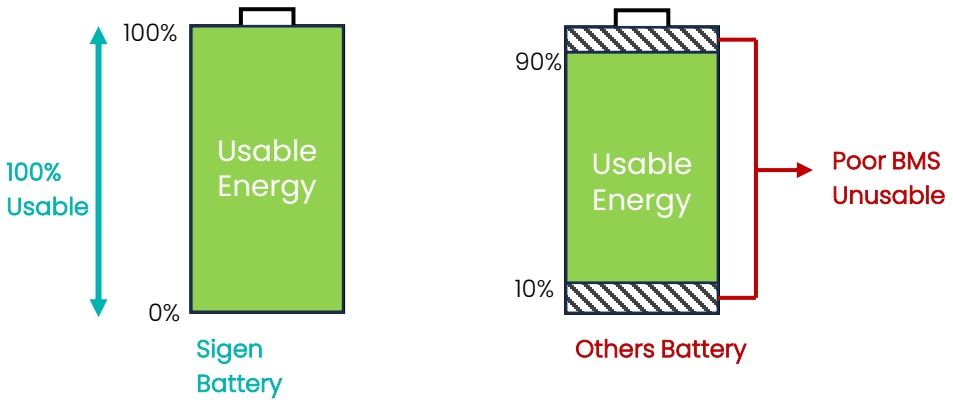
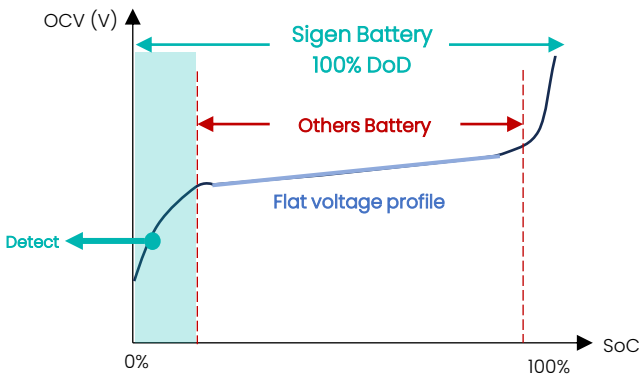



Even when discharged to 0%, Sigenergy employs multiple strategies to ensure battery safety, such as automatic recharging and multi-layered battery safety protection, giving you peace of mind during use.

However, the limited precision in BMS management capabilities of some other Batteries can lead to insufficient confidence in preventing battery overcharging and over-discharging. As a result, these systems often restrict users from fully utilizing 100% of the Usable Energy to mitigate safety risks and protect battery health.

## 2.2 More Accurate Battery State of Charge (SoC) Measurement

Due to Sigenergy 100% DoD design, the BMS can perform a complete calibration from "full charge" to "full discharge". This comprehensive "charge-discharge checkup" makes the BMS State of Charge estimation faster and more accurate, effectively avoiding incorrect battery level indications.




LFP batteries' flat voltage plateau (20%-80% SOC) hinders voltage-based SOC estimation, but voltage drops sharply at low SOC. So BMS uses this via stable low-SOC OCV to recalibrate SOC; Sigenergy leverages this by discharging to low SOC for precise capacity measurement and better SOC accuracy.

Conversely, other batteries impose restrictions on discharge and operate within a flat voltage profile during measurement. This leads to inaccuracies in SoC determination and potential errors in the overall system capacity calculation.

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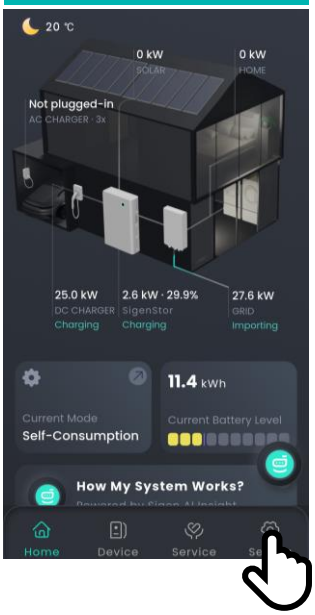
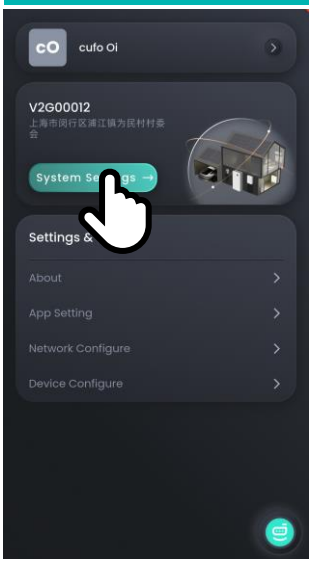
## 3. How to set the Battery Discharge Cut-off SoC to 0%?

1. Click "Setting"



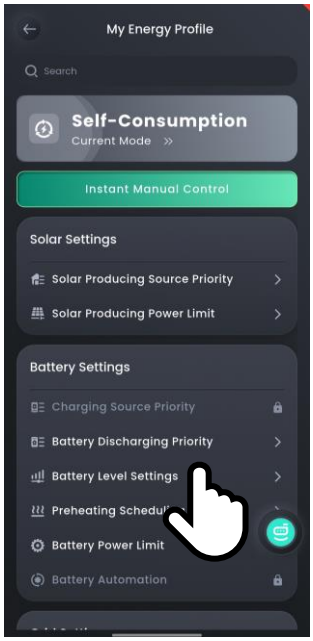

2. Click "System Settings"




3. Click "Operational Mode"



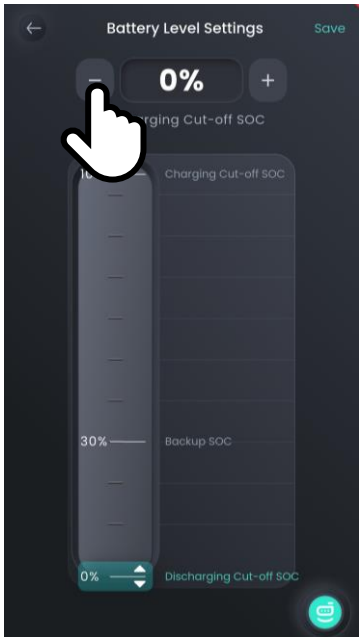

4. Click the "Battery Level Settings"




5. Long press "Discharging Cut-off SoC" to adjust




6. Set the battery discharging cut-off SOC to 0% and save

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