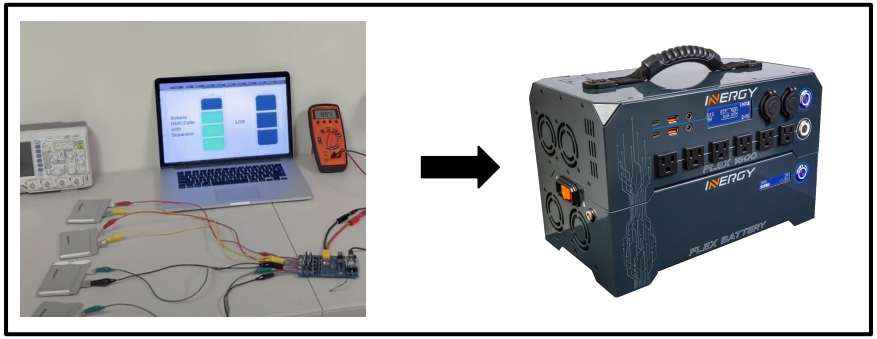
HAYLON TECHNOLOGIES

Project Goal:



Develop a battery management system that allows seamless use of second-life batteries (SLBs) in small, portable solar energy storage applications.

Operational Payoff & Transition Targets:
Haylon aims to develop a BMS system that uses AI to actively manage SLBs, which are 60% more affordable than first-life batteries. Haylon will deploy the system within Inergy Technologies solar batteries to assess the feasibility of replacing first-life cells with SLBs in future systems. Inergy has previously deployed 30,000+ systems in the commercial market, and these 60% lower-cost systems will be more affordable and sustainably produced. The core technology can be applied across use-cases.

Deliverables: (1) BMS PCB design (2) 12 Inergy Technologies BESS products equipped with SLBs and the BMS, (3) final report of project outcome, insights, challenges, and next steps to commercial scaling of the technology.

Technical Objective: Design a battery management system that utilizes machine learning and cell-level sensors and switches to actively manage each battery cell within a pack to control for differences between second-life batteries for a portable solar-powered energy storage system

Existing Challenges: (1) Differing SoH between SLBs (2) Differing RUL (3) unpredictable capacity decreases (4) thermal runaway prevention (5) inconsistent supply of similar-profile SLB cells.

Technical Solution: Haylon's BMS constantly collects and reacts to data on the power usage of each cell, e.g. current, voltage, and temperature, and uses this to ascertain SOH and RUL. The system will proactively account for discrepancies across cells, making SLBs safe and scalable for use in smaller solar applications, not just as the EV battery pack level.

Milestone	Cost	Duration
Circuit design	$75,000	M1-M3
Algorithm development	$100,000	M4-M6
BESS integration	$125,000	M5-M9
Performance Testing	$75,000	M7-M11
Scaling and Deployment	$125,000	M9-M12
Total	**$500,000**	

TRL: We have demonstrated our technology on a bench, showing its capability to match the voltages of different generations of batteries. By project end, pilot-scale commercial deployment will be done. Start**:** 5. End: 8.

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