

# Developing Next Generation Technologies for Commercialization

ORNL has teamed with innovative companies to develop groundbreaking technologies that will make BESS adoption versatile and cost effective.

# Technology

Safety is our most uncompromising design principle.

Viridi packs are designed and tested to UL's residential safety standards for deployment where most lithium-ion systems are not permissible: **in and around occupied spaces and critical equipment**



## COMPREHENSIVE PRODUCT LINE



### RPS50

Energy Storage System  
(50kWh)



### RPS150

Mobile Energy Storage  
System  
(150kWh)



### RPS1200

Container-Based Storage  
System  
(1.2 MWh)



### IoT Solution

Telematics with Edge  
Computing



### Faveo

Traffic Backup System



*Passive design – no reliance on active electrical or mechanical systems, no active cooling required*

Solving for:



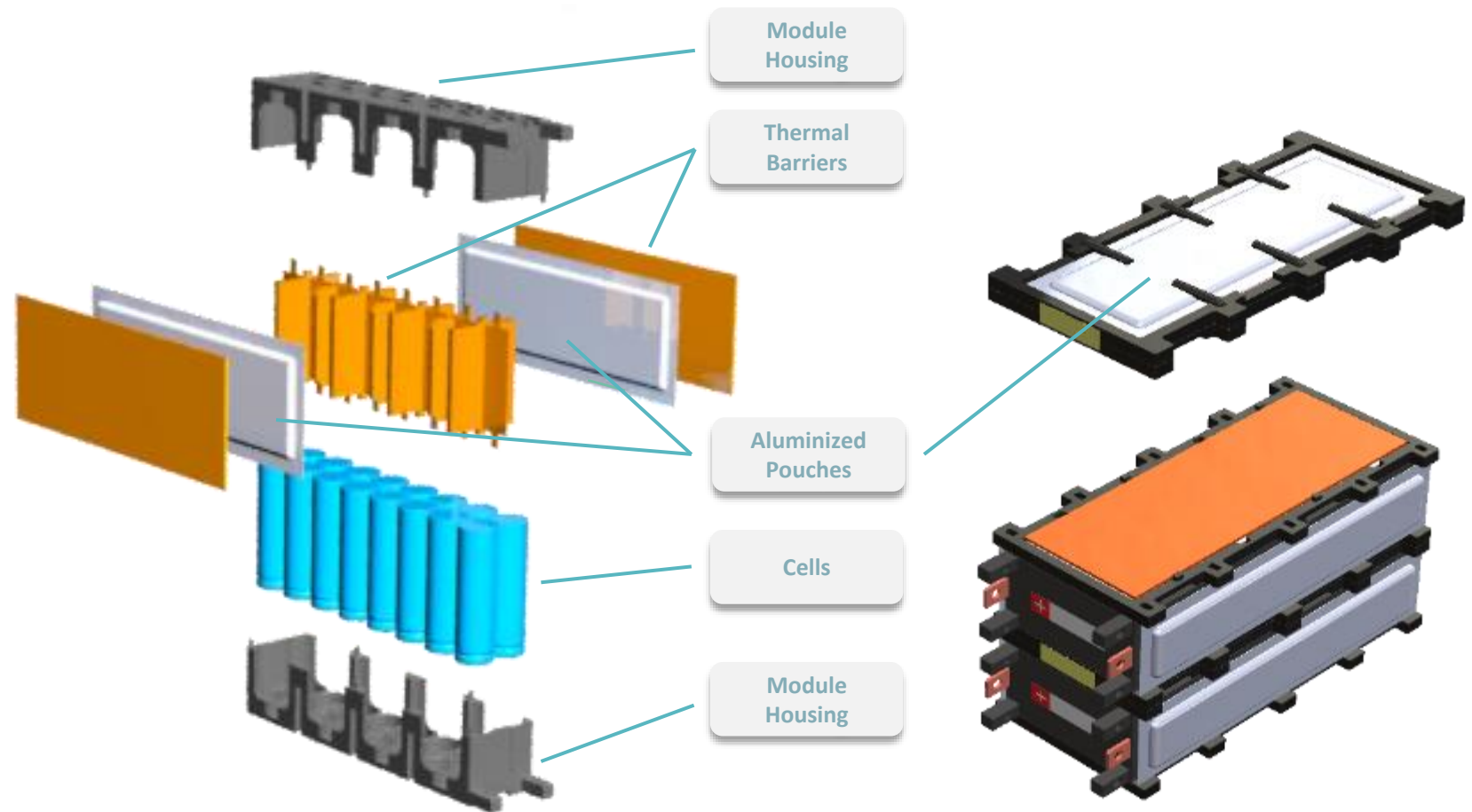
CONCUSSIVE FORCE



PARTICULATE



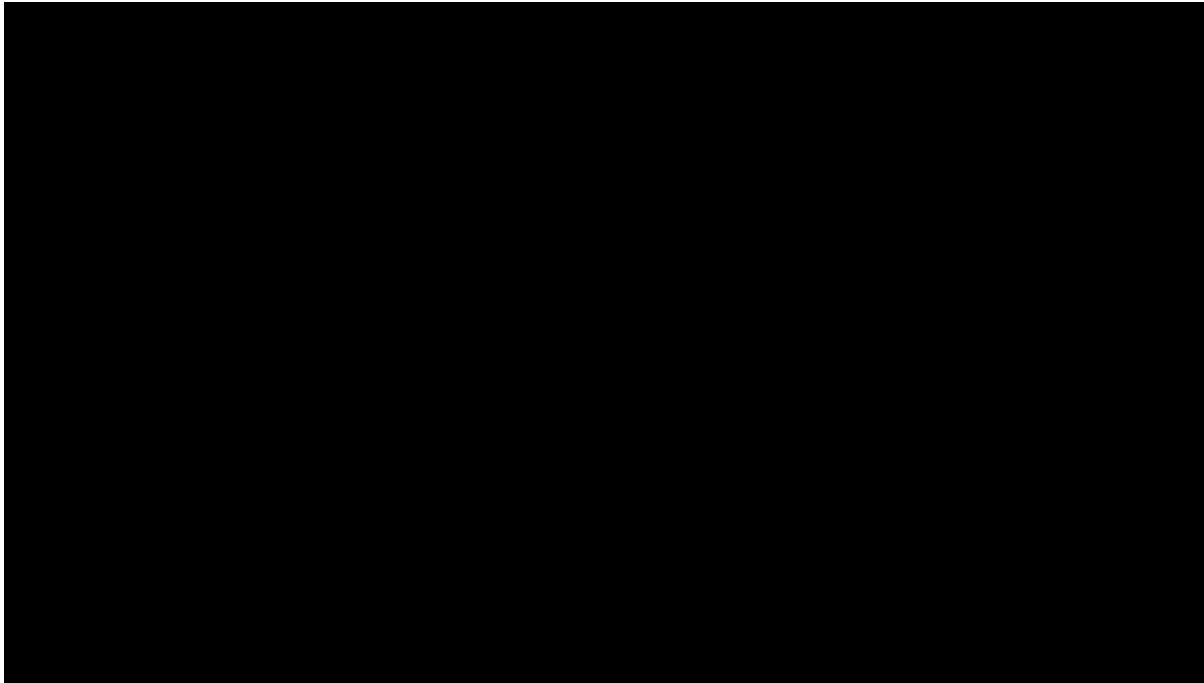
HEAT & FIRE





# PACK TESTING IN THERMAL EVENT

WITHOUT ANTI-PROPAGATION



WITH ANTI-PROPAGATION



## HAUPTMAN WOODWARD MEDICAL RESEARCH INSTITUTE, BUFFALO NY

- 600kWh Behind-The-Meter Lithium-Ion Storage powers electron microscopes in a medical test lab
- Largest commercial energy storage installation inside an occupied space in the US
- NO incremental fire suppression, HVAC, or ventilation required





## BURNING MAN, NEVADA

- 35 mobile systems deployed in 2023 to power the week-long off-grid festival (69 units to be deployed in 2024)
- 45,000 gallons of diesel fuel saved
- Harsh and hazardous desert conditions



## PIKES PEAK, COLORADO

- Paralleled mobile units powered Level 3 DCFC at the off-grid mountain race
- 3MWh of emission free charging power
- 150kW charging rate refilled each vehicle's 50kWh battery in just 20 mins



## TRAIN DERAILMENT CLEANUP, EAST PALESTINE OHIO

- **Mobile units power:**
  - Groundwater pumps
  - Demolition and digging equipment
  - Logistics and communications hubs
- **Operations ongoing since 2023 disaster**
- **Silent, emissions free performance**





## U.M.D. TERPS FOOTBALL

- Mobile units are towed into SECU stadium to power players' bench heating and cooling
- Safety is paramount given proximity to players, staff, and 50,000+ fans



## PGA TOUR GOLF

- Mobile units deployed in 2024 at Wells Fargo Championship, RBC Canadian Open, and US Open Pinehurst
- Silent, emissions free power delivered to concessions stands, merchandise tents, scoreboards, camera towers, and more



## ***GreenForce enables social impact in historically disadvantaged East Buffalo NY***

- In 2022 Viridi became the foundational sponsor of GreenForce
- Not-For-Profit Community Development Organization built to recruit, train, and support a workforce from the underserved local population
- 700+ Total Applications
- 70% hiring from 4 zip codes surrounding Viridi Facility
- 84% retention after 180 days of employment



# Problem / Solution

Viridi had tackled the issue of battery safety. However, it needed an inverter for its portable and stationary BESS.

Market research showed a suitable inverter for Viridi's BESS only originated in China.

Viridi approached ORNL and began a partnership to develop inverter.



# Issue Presented

- Viridi was making its product line portable.
  - Leader in the market because of its safety
  - Alleviated the concerns of stranded assets
  - Semi-permanent installations
- Product development constrained by existing inverter market.
  - Utilizing suppliers from China
  - Balancing cost vs. effectiveness
  - Development barriers
  - Tariffs

# ORNL Solution: Strategic Partnership Project

- Began in 2024 for Viridi to work with ORNL.
  - Goal was, and continues to be, to develop an inverter that will allow for efficient market adoption.
  - Provide domestic battery developers with optionality
  - Alignment with Administration's goals to on-shore battery supply chain development
  - Utilize world-class talent at ORNL to increase technology available to growth companies
  - Introduce technology through additional partnerships via PACE
- Design and Development being completed in 2024-25.
- Validation for grid support applications / virtual power plants.
  - UL 1741

# Viridi's Participation PACE Consortium

- Fills the largest gap for growth-stage companies: promoting alignment between developers, utilities, and research organizations
  - Showcasing new technologies in commercial applications
  - Projects for grid stabilization and modernization
  - Facilitating partnerships within the industry
  - Necessary product and application support for increased adoption
- Viridi is participating in several programs administered by PACE & ORNL