FPC 2026

Battery 3.0: High-Performance Cells for Advanced Mobility

Dr. Kieran O'Regan – Co-Founder of About:Energy

London-based HQ and Testing Lab Driving the Adoption of **Next-Generation Batteries**

We connect **Battery Manufacturers** with **Qualified Buyers**

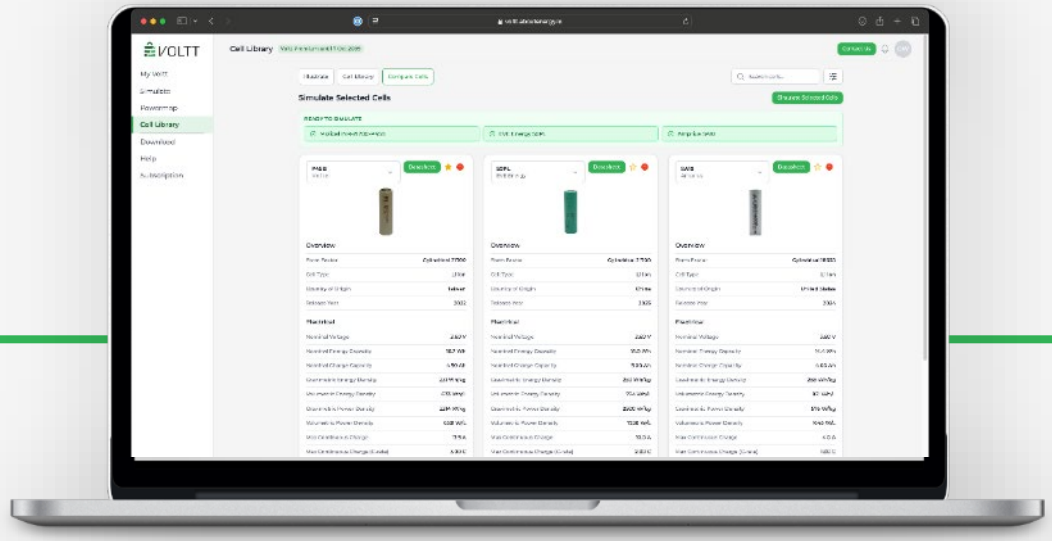
inoBat · MOLICEL · EVE · Ampace · amprius · SAMSUNG · ENPOWER GREENTECH · LG Energy Solution

Our Customers

McMURTRY AUTOMOTIVE · Mercedes-Benz · QUANTUM SYSTEMS · PORSCHE

Supporting Pack Designers to Evaluate New Batteries

We connect battery manufacturers with engineers evaluating cells

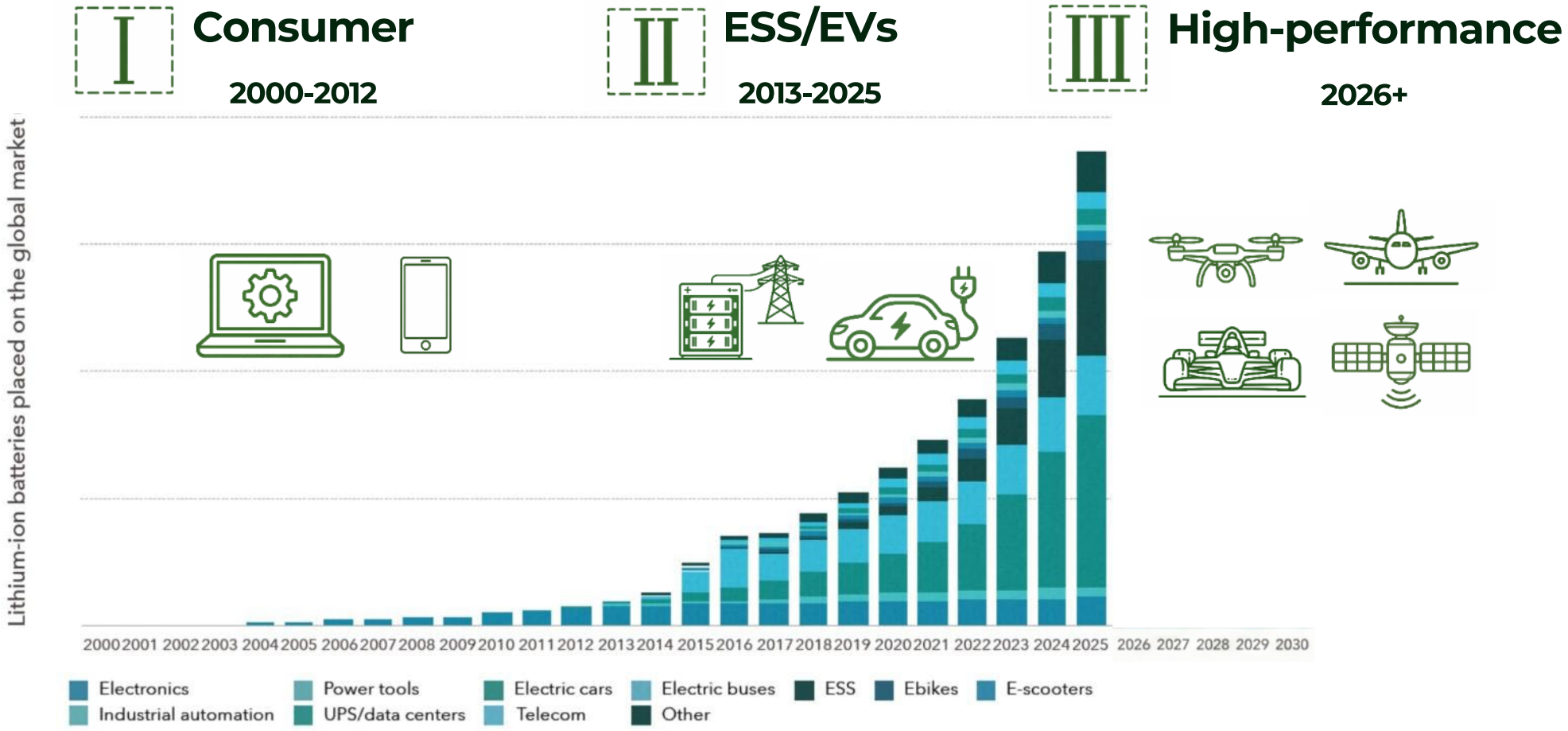


Cell Manufacturers

Battery Pack Designers

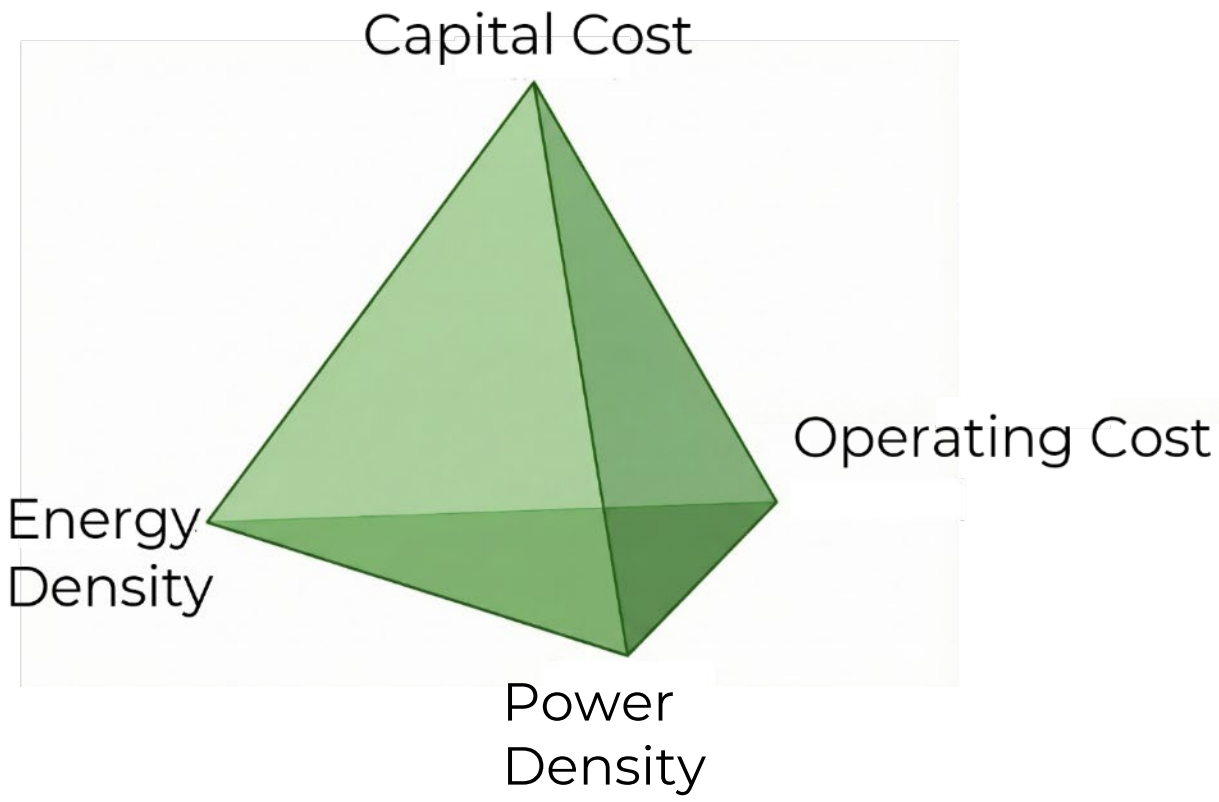
A few of our public customers:

Battery Industry 3.0: The Performance Era



How Application Demands Shape Battery Technology + Market

Four critical trade-offs, **one** cell choice



Sub-optimal cell

Design + Manufacture

Poor pack specification

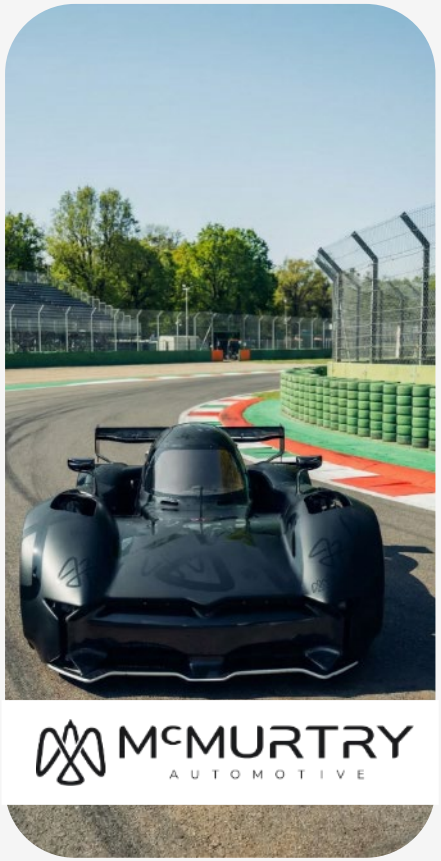
Range
Safety
Charging
Supply chain flexibility
Warranty
Sustainability

Demanding Applications Setting New Performance Benchmarks

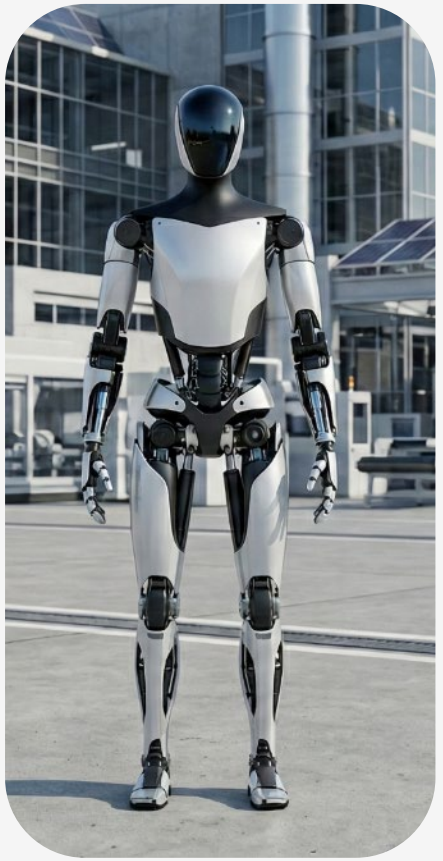
Drones

Aviation

Space



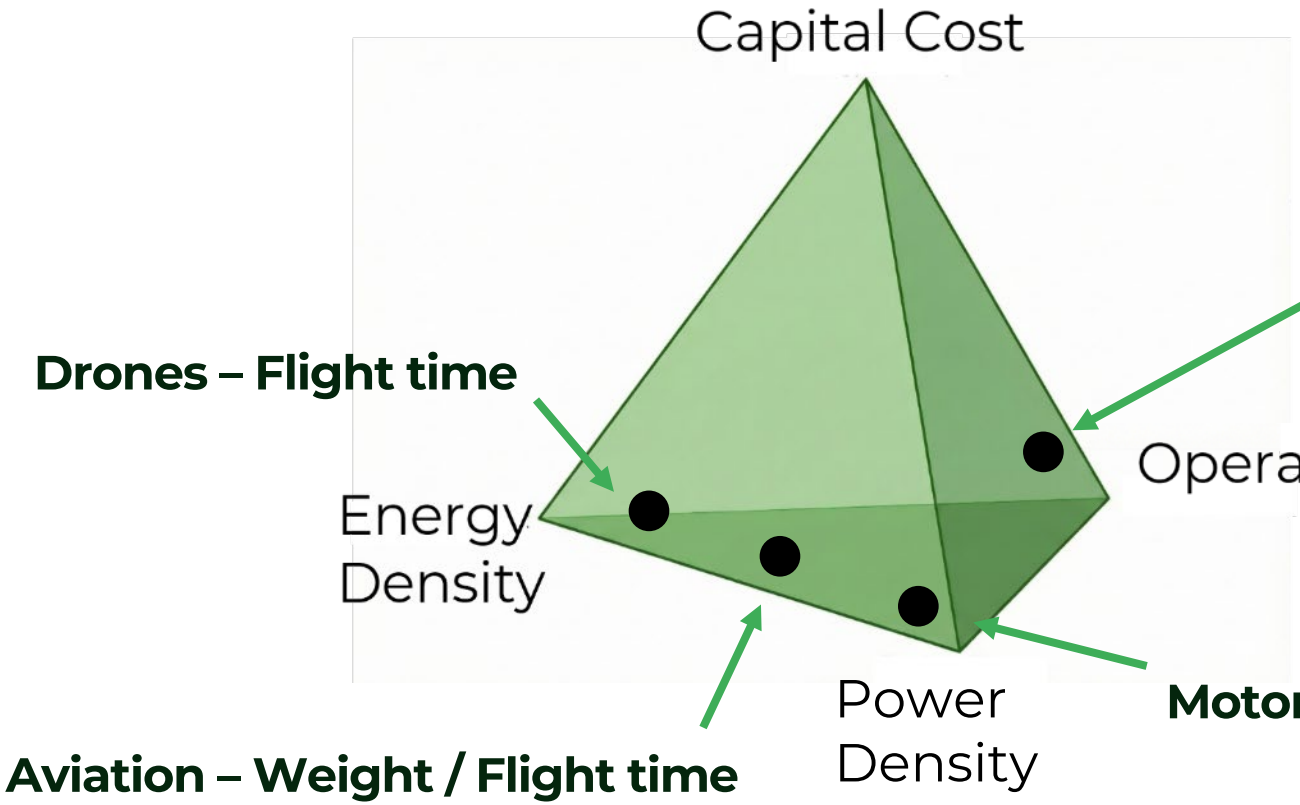
Motorsports



Robotics

Mission metrics define batteries in performance industries

Battery systems from £200/kWh to £10,000/kWh



High performance demands proven commercially available cells

The benefits/drawbacks of commercial cells

Pros:

+ Proven, available cells
+ Standardized formats (NRE)
+ Performance
+ Flexible integration

Cons:

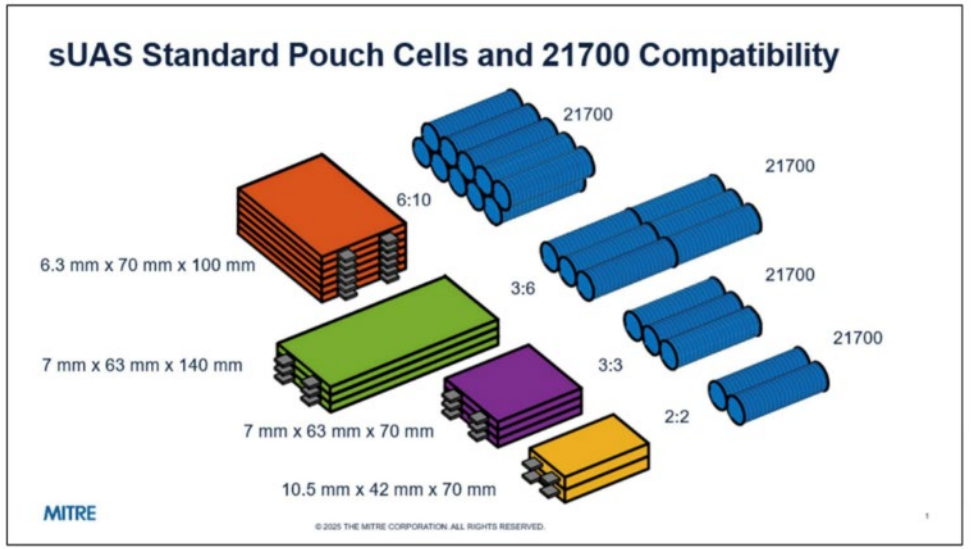
- Not a lot of choice
- Adoption risk due to data
- Supply chain / regulatory risk

Use ‘exclusively’ pouch and cylindrical

2 – 6 Ah

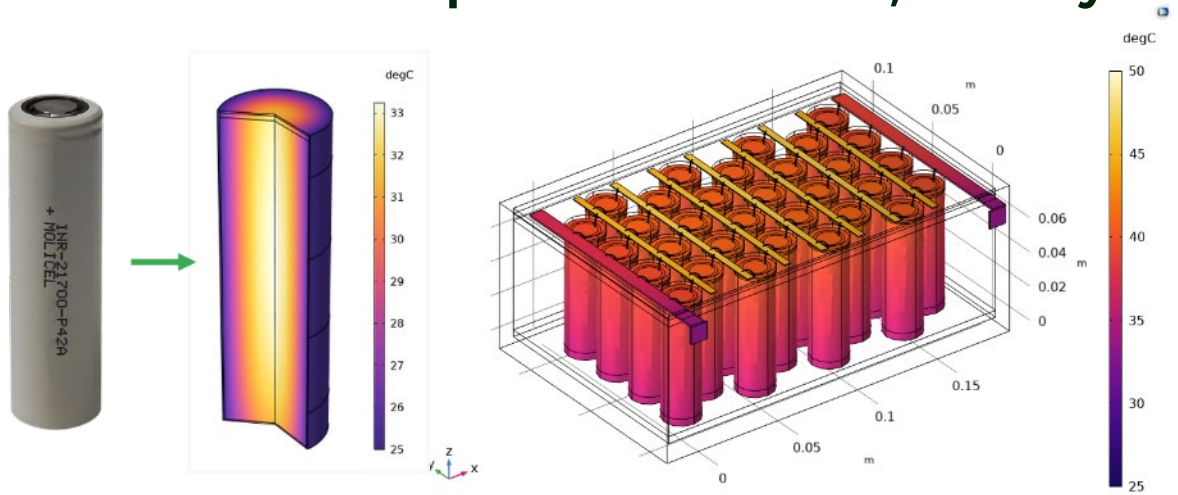
7 – 20 Ah

Cell sizes should be driven by pack mass/volume



Product design starts with a pack, cell selection should too

Test batteries in pack environment, virtually



*"One of the **fundamental challenges** in advanced **battery systems** development is the robust translation of cell-level characterisation data into accurate and repeatable pack-level performance predictions" –*

Chris Martin Head of Battery, McMurtry Automotive

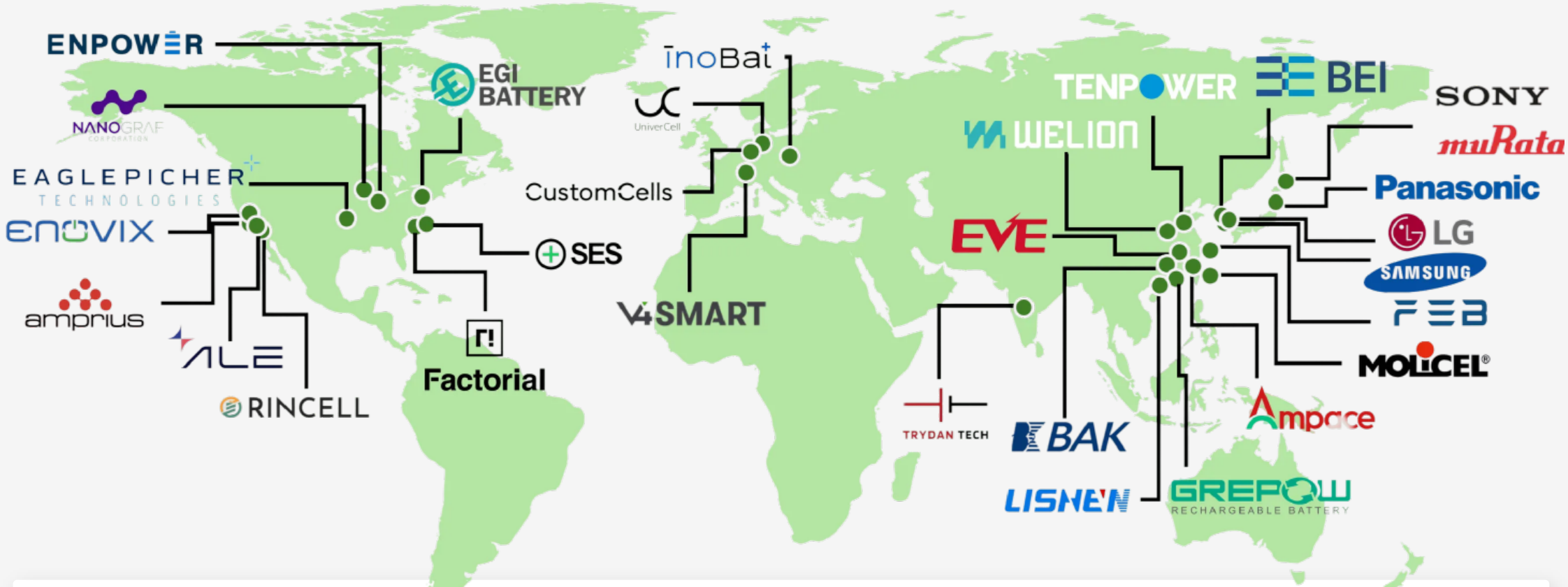
McMURTRY AUTOMOTIVE

Applied Technology

*"[reducing] this gap between cell characterisation and **real-world integration** is a critical enabler in **high performance batteries**"*

54kWh 'HPC' Battery Pack

High-Performance Battery Cell Supplier Landsape



“Next-gen” is not new

Supply chain Asia centric

Pivots from EVs to performance

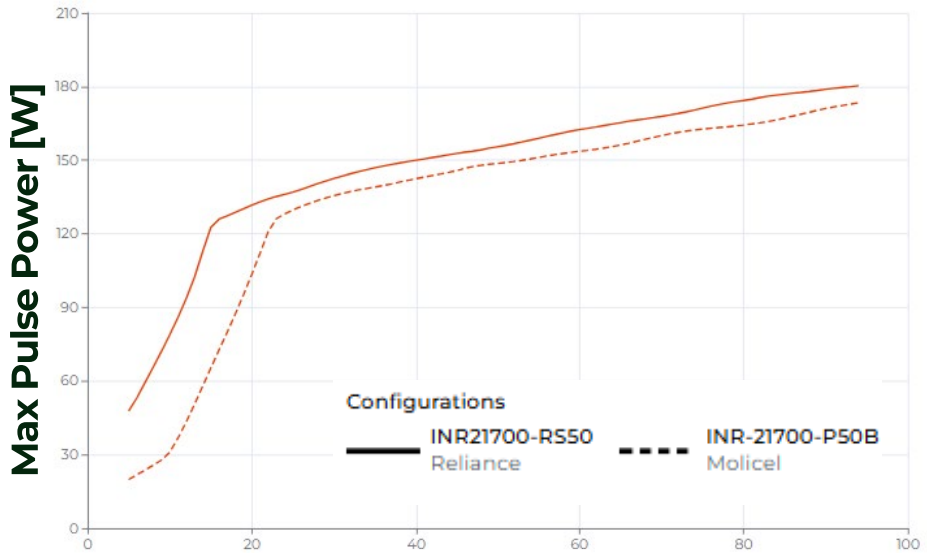
Tabless Electrodes, Enhancing Power Availability

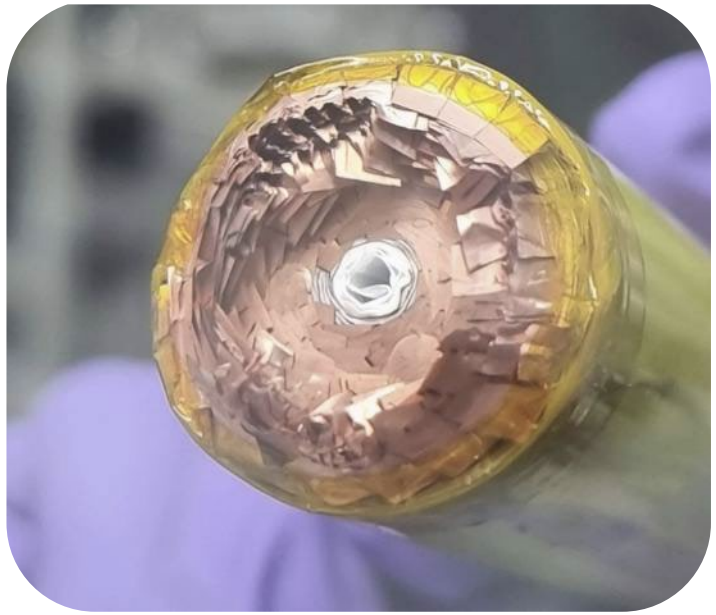
Pros: Power/Heat Gen

Cons: Manufacturability

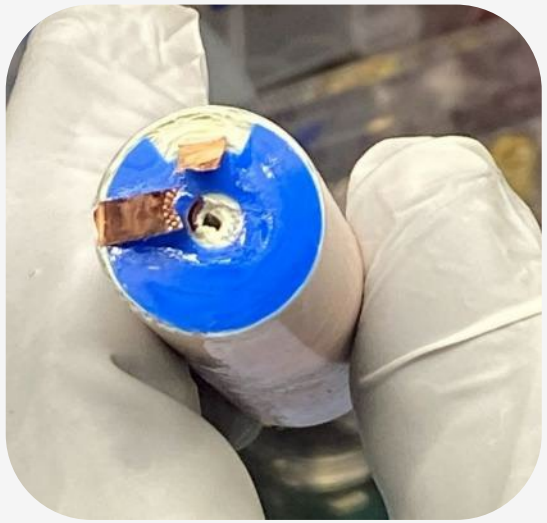
For Molicel P50B, vs Reliance RS50 Tabless:

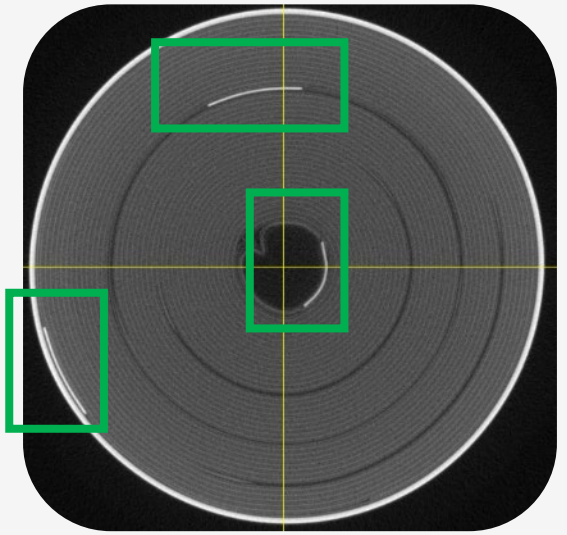
- 16% more power
- 33% less DCIR
- 8% lower knee-point, SoC





Tabbed Electrodes





Tenpower 50XG · Reliance RS50 · EVE 50PL

Lithium Metal Anodes, Step Change in Energy/Power

Pros: Energy/power density **Cons: Lifetime/Cost**

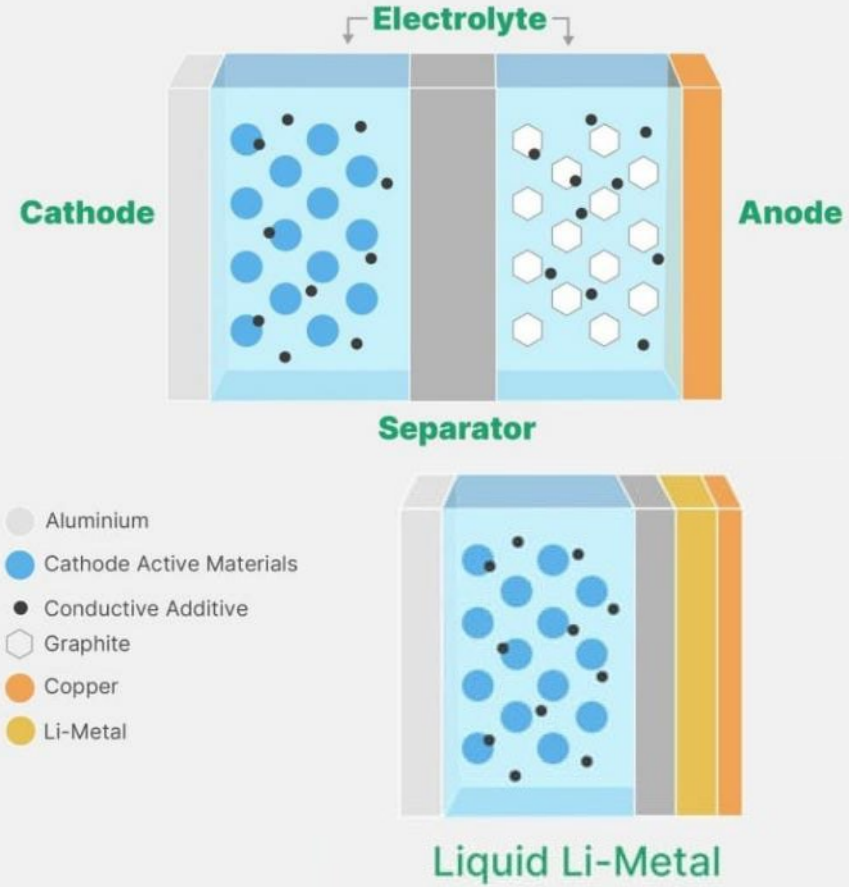
BEI MUL17A

Electrical

Nominal Voltage [V]	3.86
Energy Capacity [Wh]	69.4
Capacity [Ah]	18
Gravimetric Energy Density [Wh/kg]	434
Gravimetric Power Density [W/kg]	4101
Max Continuous Discharge (A)	170

BEI MUL03A · LNP0130M

Replace graphite with lithium metal

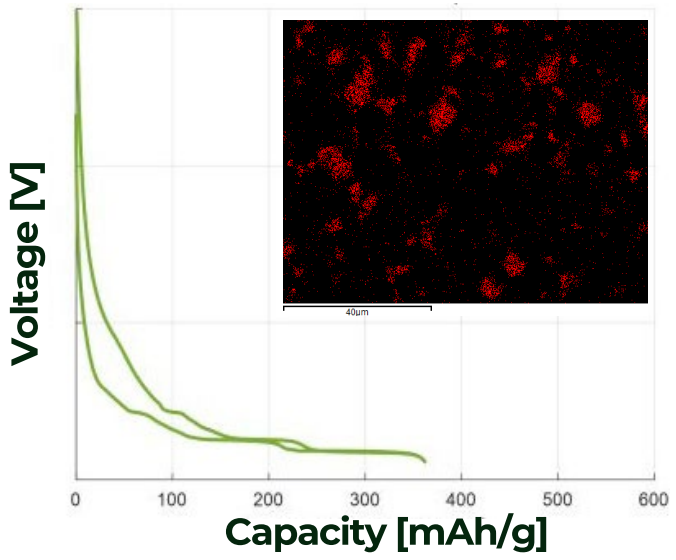


Silicon Anodes, Increasing Energy in Conventional Formats

Pros: Energy density **Cons: Lifetime/Safety**

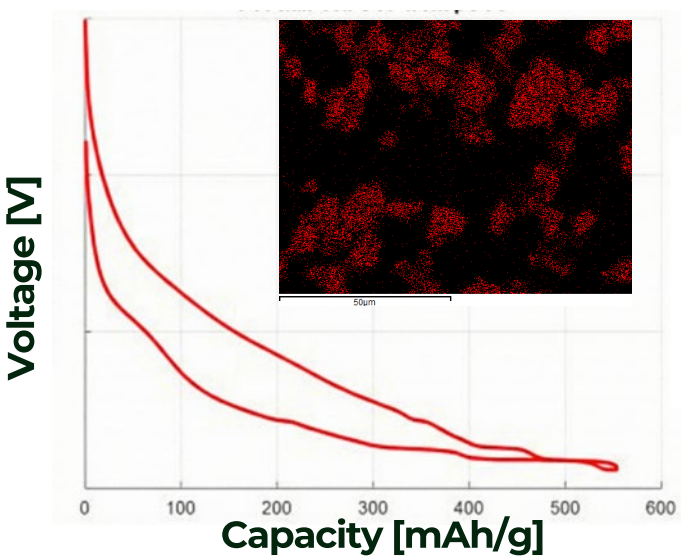
50% more anode capacity in 4 years → **25% more energy**

Molicel P45B Anode



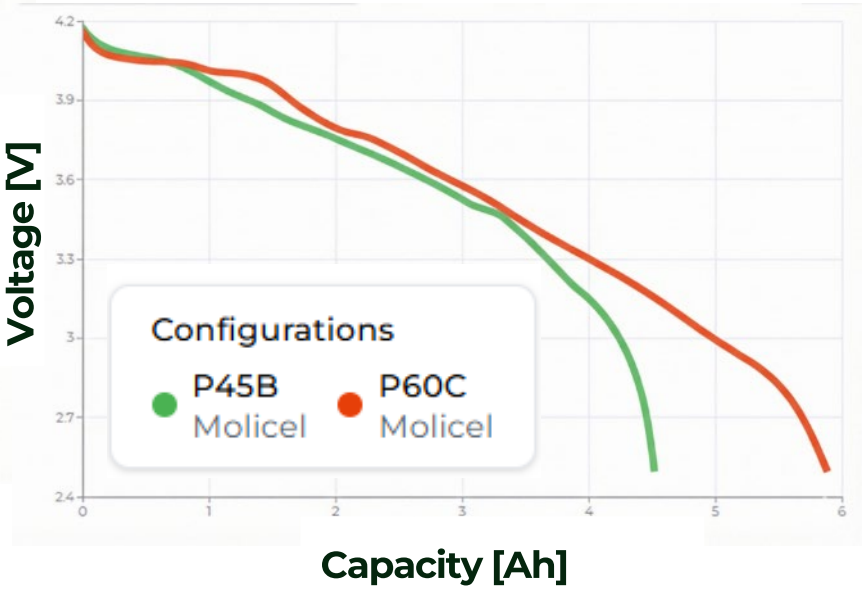
367 mAh/g

Molicel P60C Anode



553 mAh/g

P45B vs P60C Cell



Molicel P60C · FEB 68E · Amprius SA112

Supply chain pivots and regulation

Strategic Shift from Automotive

Battery firms pivot from automotive to niches

Market dynamics
(1) Automotive timelines and margins
(2) Drones, defence, motorsport prioritisation
(3) Niche sectors faster commercial traction

Geopolitical Risk or Opportunity

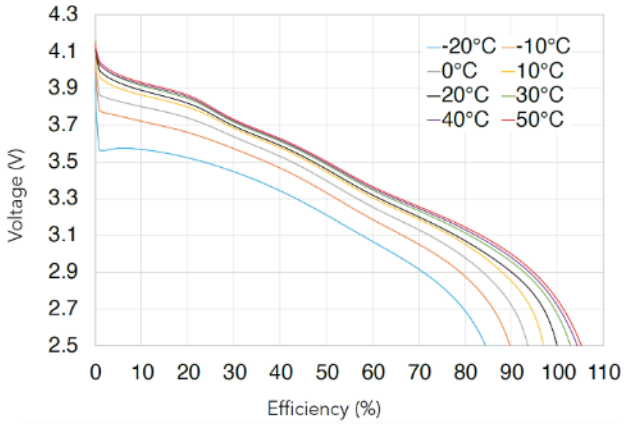
US NDAA Supply Chain Regulation – 1st January 2028

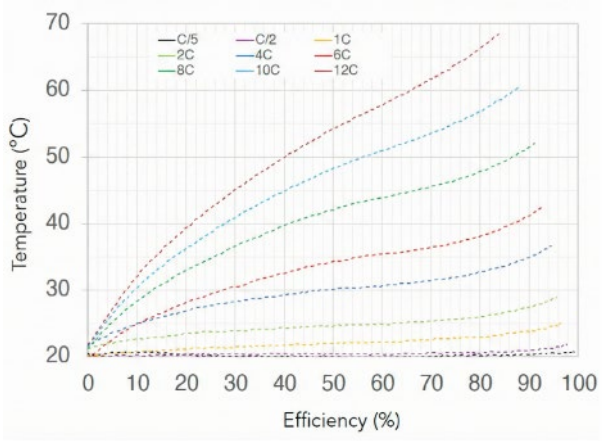
Policy requirements
(1) Over 95% non restricted materials
(2) No restricted licensed manufacturing technology
(3) Applies to batteries and critical systems

Beyond Spec Sheets: Choosing the Right Metrics for Packs

(1) Spec Sheet Data

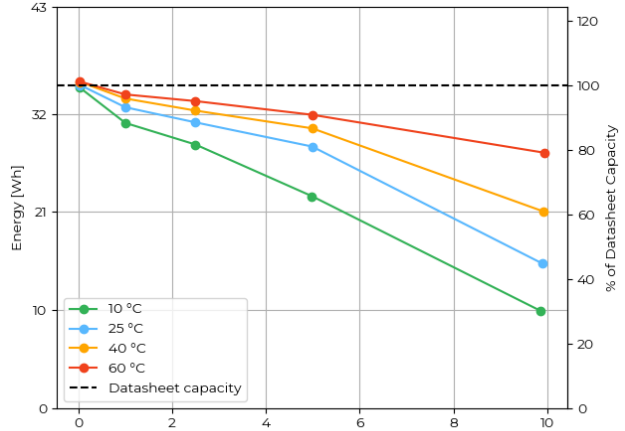
Manufacturer defined test conditions

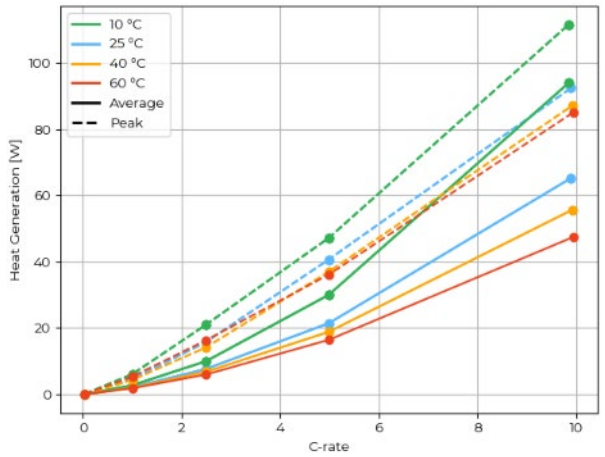




(2) Standardised Cell Metrics

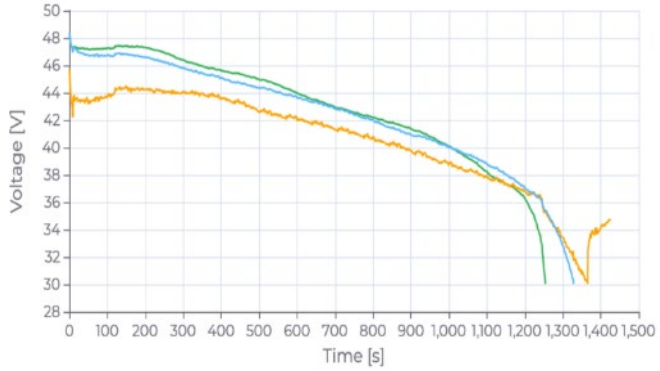
Performance under identical conditions

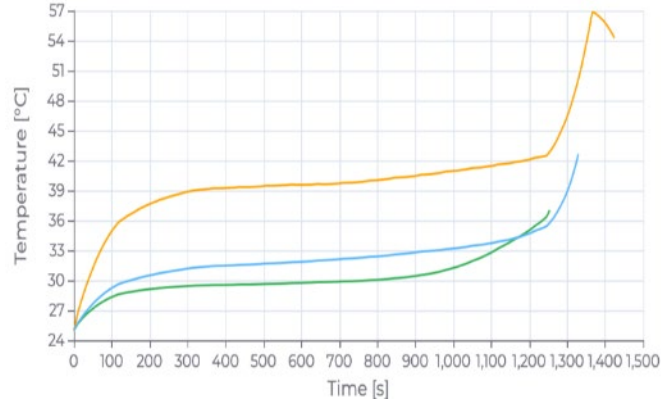




(3) Mission Specific Simulation

Pack level results for your exact use case





Six ‘real’ popular cells we are seeing for 2026

21700 Power

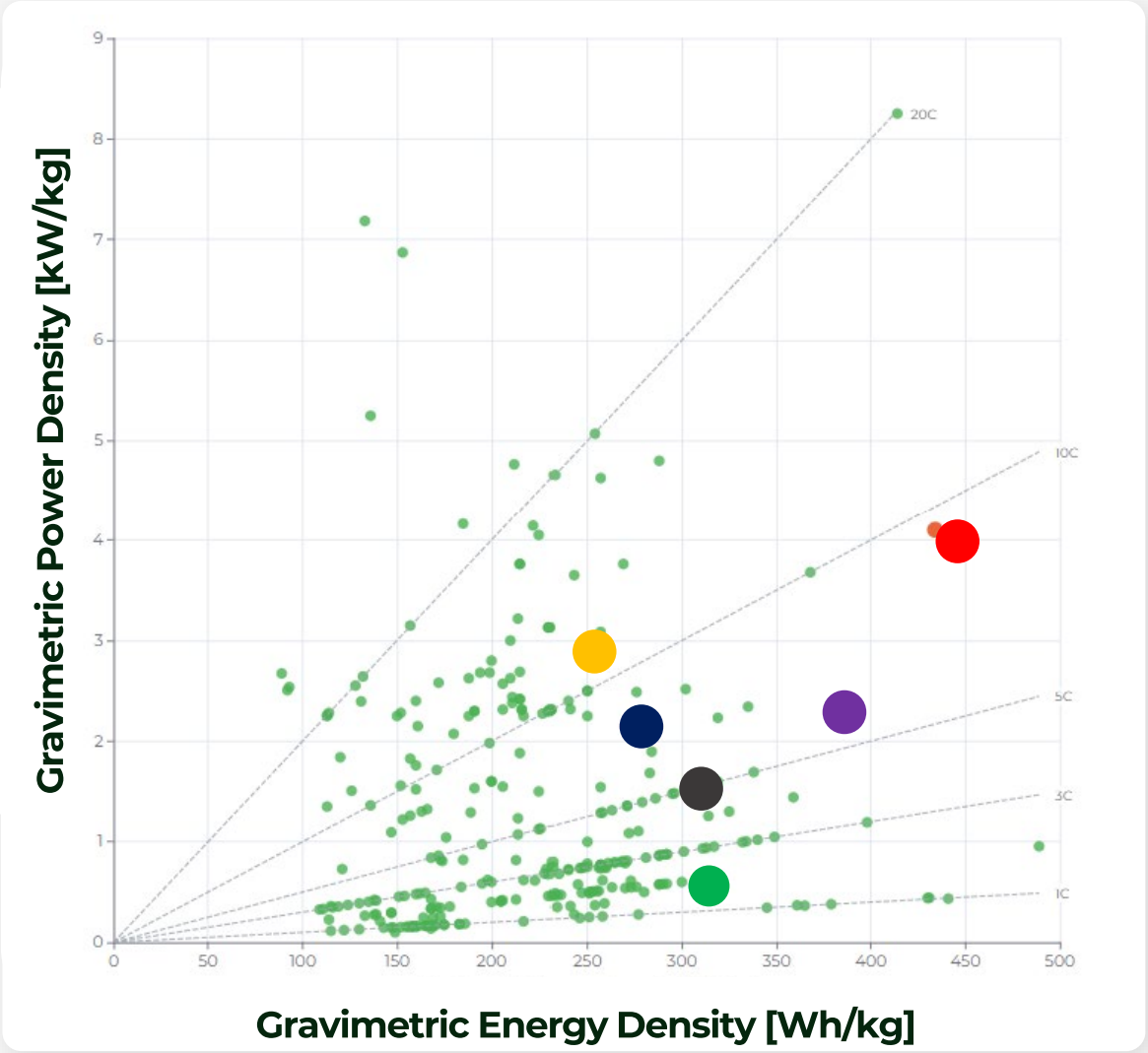
Samsung 50U

LG H52A

21700 Energy

Amprius SA112

Molicel M65A



Pouch Energy/Power

BEI MUL17A

Amprius SA504

Key Takeaways

- **Western shift to high performance sectors**
- **New technologies and specialist suppliers emerging**
- **Rise of the full stack battery engineer**
- **Free Report – Coming in March**

Featuring data from popular cell suppliers including:

amprius · MOLICEL · Factorial · V4SMART · EVE · FEB · ENPOWER GREENTECH · SAMSUNG · inoBat · RINCELL · Ampace · LG Energy Solution

UK Performance Pack Makers