

26th Annual



advanced automotive battery conference

DECEMBER 7 - 10, 2026

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Innovation in Mining &
Metallurgical Processing

2026 Conference Programs

MONDAY, DECEMBER 7



Pre-Conference Tutorials

Symposia



LARGE-SCALE



RECYCLING

TUESDAY AND WEDNESDAY, DECEMBER 8 AND 9



CHEMISTRY
- PART 1



ENGINEERING



BATTERY
MANUFACTURING



RAW
MATERIALS

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LITHIUM
& RARE
EARTHS

WEDNESDAY AND THURSDAY, DECEMBER 9 AND 10



CHEMISTRY
- PART 2



XEV BATTERY
TECHNOLOGY



MANUFACTURING
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AI FOR ENERGY
STORAGE

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December 7, 2026 | San Diego, CA

Tutorials*

MONDAY, DECEMBER 7, 2026 8:00 - 9:30 AM

TUT1: Economics of Battery Material Development & Manufacturing

Instructor:

Thomas D. Gregory, Owner and Consultant, Borealis Technology Solutions LLC

TUT2: BMS & Charging

Instructors:

Gregory L. Plett, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

Scott Trimboli, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

MONDAY, DECEMBER 7, 2026 10:00 - 11:30 AM

TUT3: Cell & Pack Design

Instructor:

Kevin Konecky, Vice President, Battery Systems Engineering, Spiro

TUT4: The Rechargeable Battery Market Value Chain and Main Trends

Instructor:

Michael Sanders, Senior Advisor, Energy, Avicenne Energy

MONDAY, DECEMBER 7, 2026 1:00 - 2:30 PM

TUT5: Technology Innovation in the Chinese Battery Industry

Instructor:

Mark Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

TUT6: Improving the Energy Density of Batteries with Silicon-Based Anodes

Instructor:

Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

TUT7: Li-ion Cell Design & Manufacturing

Instructor:

James Kaschmitter, CEO, SpectraPower LLC

MONDAY, DECEMBER 7, 2026 3:00 - 4:30 PM

TUT8: Critical Battery Minerals

Instructor:

Kimberly Berman, Independent Consultant, Pivot Research

TUT9: Battery Safety and Abuse Tolerance Validation

Instructor:

Shmuel De-Leon, CEO, Shmuel De-Leon Energy Ltd.

TUT10: Solid-State Batteries

Instructor:

Venkataraman Thangadurai, PhD, Chair, Energy & Faraday Institution; Adjunct Professor, School of Chemistry, University of St. Andrews

* All Access or separate registration required for Tutorials



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Large-Scale Battery Energy Storage Systems

Enabling Large-Scale Storage through Cell and System Innovation

MONDAY, DECEMBER 7

7:00 am Registration and Morning Coffee

MARKET DRIVERS AND EMERGING APPLICATIONS

7:50 Organizer's Remarks

Sarah Stockwell, PhD, Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks

Kandler Smith, PhD, Moment Energy

8:00 Data Centers and the Power Problem: Energy Storage to the Rescue?

Shan Tomouk, BESS & Energy Research Lead, Benchmark Mineral Intelligence

As AI continues to advance and integrate into everyday applications, energy consumption is expected to surge, placing unprecedented pressure on the power grid. This talk explores how Battery Energy Storage Systems (BESS) can support the rapid expansion of data centers, ensuring reliability, efficiency, and sustainability. We will discuss the benefits of behind-the-meter (BTM) storage, examining how on-site battery solutions help facilities manage peak loads, reduce costs, and enhance resiliency.

8:30 Powering the Future of Heavy-Duty Transportation: Large-Scale BESS for High-Power Truck and Bus Charging

Joshua Goldman, Senior Director of Sales, eMobility, ABM ATS

Heavy-duty truck and bus electrification is driving demand for high-power charging that often exceeds existing grid capacity. This presentation examines how large-scale Battery Energy Storage Systems (BESS) enable multi-megawatt charging by reducing peak demand, improving resilience, lowering costs, and easing grid constraints. Through real-world deployments, attendees will gain practical insights into integrating energy storage with charging infrastructure to support scalable, reliable fleet electrification.

9:00 Battery Storage across Grid and Off-Grid Systems: Stability and Energy Security

John Glassmire, Vice President of Digital Enablement and Transformation, Hitachi Energy

Modern power systems face increasing challenges from renewable integration, declining system inertia, and growing reliability demands, particularly in off-grid environments supporting AI-driven workloads. This presentation explores how advanced inverter-based energy storage systems enhance grid resilience through frequency regulation, voltage support, black-start capability, and dynamic fault response. Learn how modern inverter technology enables reliable, resilient power for utility-scale grids, islanded systems, and mission-critical digital and industrial infrastructure.

9:30 Coffee Break

ELECTRIFYING HEAVY INDUSTRY AND MINING

10:00 Battery Intelligence for High-Utilization Heavy-Duty Fleets: Lessons from Electrified Mining

Tom Maull, Principal Product Manager, Innovation, Elysia Battery Intelligence

Electrified mining haulage is proving out battery intelligence as a TCO lever—using embedded controls, cloud analytics, degradation forecasting, and reduced-order models to inform charging, dispatch, usable-energy margins, and maintenance. This talk shows how lessons from Fortescue's mining operations translate to heavy trucking and other commercial fleets, where battery behavior must become operational decisions to improve uptime, asset life, and cost.

10:30 Electrifying the (Almost) Impossible: Battery System Architecture Development to Unlock Zero-Emission Mining

Allan Paterson, PhD, Head, Battery Development, Fortescue ZERO

Electrifying ultra-heavy mining equipment was long considered beyond practical reach. This presentation explains how Fortescue leverages advances in battery chemistry, pack architecture, thermal, structural, and control design to redefine zero-emission heavy industry. Lessons from motorsport and high-performance electrification inform solutions for multi-megawatt duty cycles, harsh environments, and fleet-scale optimization, highlighting the architectural innovations needed to shift from diesel dependence to fully electric mine sites across global mining operations.

11:00 Electrochemical Considerations for Hybrid Batteries in Heavy-Duty Trucks

Jordan Loos, Senior Specialist, Battery Integration, Cummins Battery Systems North America

As the industry pushes toward electrification, hybrid battery systems are emerging as a practical stepping stone, especially for heavy-duty trucks where range, cost, and charging infrastructure remain major hurdles for full BEV adoption. The electrochemistry considerations, trade-offs, and performance requirements in cell design for hybrids differ from those of BEVs, which will be discussed in the context of the various levels of hybridization as investigated at Accelera.

11:30 Sponsored Presentation (Opportunity Available)

12:00 pm Enjoy Lunch on Your Own

ADVANCING BATTERY ENERGY STORAGE SYSTEM DESIGN

12:55 Chairperson's Remarks

Tom Maull, Principal Product Manager, Innovation, Elysia Battery Intelligence

1:00 Optimizing BESS Batteries

Mei Cai, PhD, Senior Director, Battery Engineering, Fluence

While EV battery design is aggressively optimized for high energy density, rapid peak power delivery, and high variable dynamic acceleration profiles, utility-scale energy storage systems (ESS) demand a radically different engineering paradigm. ESS applications prioritize ultra-long calendar life, absolute thermal safety, and structural resilience under thousands of deep, continuous daily cycles. In this talk, the cell-level design modifications, material breakthroughs, and supply chain shifts for ESS applications will be discussed.

1:30 Reconfigurable Large-Scale Battery System Design and Control to Advance Safety, Performance, and Multi-Life Usage

Huazhen Fang, PhD, Associate Professor, Mechanical Engineering, Michigan State University

Reconfigurable battery systems enable electrical connections between cells or modules to be dynamically adjusted during operation. This capability offers significant advantages for large-scale battery packs including enhanced safety, greater fault tolerance, improved energy utilization, longer service life, and flexible power delivery. This talk will outline key design approaches for implementing reconfigurable battery systems, examine optimal power management strategies, and showcase applications in energy storage, electric aircraft, and multi-life systems.

2:00 Single-Cell Fault Identification in Control and Monitoring Batteries in BESS and Data Centers

Brian Engle, Chairman, NAATBatt; Chair, SAE Battery Standards Steering Committee; Director, Business Development, Amphenol

Data centers are driving the need for batteries on the PCB, rack, skid-level, and BESS, with different work cycles driving different battery specifications and different chemistries within the same facilities. Single-cell venting in these environments must be managed and monitored for prompt safety response. Design-level hazard analysis needs to consider passive mitigation, active detection, suppression, and appropriate response guidance with training to mitigate worst-case scenarios impacting operators and facilities.

2:30 Refreshment Break

Large-Scale Battery Energy Storage Systems

Enabling Large-Scale Storage through Cell and System Innovation

3:00 The Cost and Payoff of Safety in ESS: A TechnoEconomic Analysis (TEA) of the Cost Implications of Providing a Safer Battery Cell for a Battery Energy Storage System

Sam Jaffe, Vice President, Business Development and Product, Mana Battery

As large-scale BESS deployments accelerate, balancing safety and cost is increasingly important. This presentation explores the techno-economic implications of safer battery cell technologies, examining how safety investments impact system performance, project economics, and the total cost of ownership.

3:30 Battery SoX Intelligence: Millivolts Unlocking Gigawatt-hours

Kandler Smith, PhD, Moment Energy

Scaling grid storage with repurposed EV batteries requires precise degradation tracking. For LFP, a flat open-circuit voltage curve obscures cell aging. This presentation demonstrates how monitoring millivolt-level behaviors extracts gigawatt-hours of latent capacity. By combining physics-informed models with electrochemical state estimation, we resolve LFP and graphite phase-transitions. Operational data shows how these voltage signatures drive predictive aging forecasts and anomaly detection, unlocking safe operation beyond industry-standard warranties.

4:00 Domestic Supply Chains for BESS: Why FEOC Compliance Reshapes Component Strategy

Joseph O'Connor, Director, ESS Solutions, Engineering, Nuvation Energy

As "Foreign Entities of Concern" (FEOC) thresholds tighten through 2030, supply chain architecture becomes a competitive lever, not just a regulatory checkbox. We'll examine how sourcing FEOC-compliant BMS and control electronics reshapes the economics, cybersecurity posture, and time-to-market for large-scale BESS deployments. Case studies from North American and European OEMs show where domestic vs. premium-imported strategies create advantage.

4:30 Breaking the LFP Ceiling: A Non-FEOC, US-Made LFP Cell with Industry-Leading Pack Energy Density

Kevin Dahlberg, PhD, Sr Director – Electrochemistry Development, Our Next Energy, Inc.

Electrifying large-scale applications requires balancing high energy density, robust safety, and a secure domestic supply chain—goals that often conflict. This presentation demonstrates how LFP prismatic cells with a 100% silicon anode can achieve industry-leading pack-level energy density while maintaining EUCAR 3 safety and a non-FEOC supply chain. Full-scale prototypes have been validated, demonstrating a commercially viable path to next-generation U.S.-manufactured battery production.

5:00 Close of Symposium





Battery Recycling

Innovative Recycling Solutions for a Circular Battery Economy

December 7, 2026 | San Diego, CA

MONDAY, DECEMBER 7

7:00 am Registration and Morning Coffee

MARKET DRIVERS AND THE CIRCULAR ECONOMY

7:50 Organizer's Remarks

Sarah Stockwell, PhD, Conference Producer, Cambridge EnerTech

7:55 Chairperson's Remarks

Steve Sloop, PhD, President, OnTo Technology LLC

8:00 Black Mass Market Update: North American Hurdles and Highlights

Kirstyn Petras, Regional Editor, Metals Recycling, Fastmarkets

This presentation will provide an overview of black mass supply chains and the evolving market forces shaping the battery recycling sector. It will cover how shifting US policy, overseas demand, battery metal prices, and changing trade flows are influencing black mass sourcing, pricing, and processing. The discussion will explore the current drivers both supporting market growth and hindering North American expansion, and what global developments mean for the US market.

8:30 Recycling: A National Security Imperative

Ajay Kochhar, Head of Glencore Battery Recycling, Glencore

As demand for critical battery materials accelerates, recycling is becoming a strategic necessity. This presentation explores how domestic recycling strengthens supply chain resilience, resource security, and national competitiveness while reducing reliance on foreign sources.

9:00 How Modeling Assumptions Impact Estimations of the Economics, Environmental Impacts, and Net Benefits of Lithium-ion Battery Recycling

Anna Cobb, PhD Candidate, Engineering & Public Policy, Carnegie Mellon University

Though there have been many prior assessments of the economics and CO₂-equivalent emissions impacts of lithium-ion battery (LIB) recycling, it remains unclear how these metrics translate to the need for policy intervention, or lack thereof, in the industry. In this work, we compare LIB recycling profitability and monetized CO₂-equivalent emissions externalities across a wide range of scenarios and assumptions to determine under what conditions policy intervention may be justified.

9:30 Coffee Break

OEM PERSPECTIVES ON BATTERY CIRCULARITY

10:00 Advancing Battery Circularity: Maximizing EV Battery Value

Melissa Flaherty, Director EV Battery Lifecycle & Aftersales Strategy, General Motors Co.

This presentation outlines how GM is advancing EV battery circularity across the full lifecycle through serviceability, remanufacturing, recycling, second use, and design for lifecycle.

10:30 Closing the Loop on Amazing Abundance: Tesla's Vertically Integrated Battery Recycling Program

Nathan Nye, Senior Manager, Battery Recycling, Battery Minerals & Metals, Tesla Motors

Since its founding, Tesla has pursued sustainability without compromise. As its vision evolved from the Roadster to AI-enabled abundance, one pillar has remained constant: a vertically integrated battery recycling program. By designing for circularity, integrating recycling into Gigafactories, and recovering critical materials through advanced processing, Tesla transforms potential resource constraints into a sustainable supply loop, recovering lithium, nickel, cobalt, copper, and other valuable battery materials.

11:00 Enabling Circular Battery Supply Chains through Direct Cathode Recovery and Upcycling

Shweta Lingayat, Researcher, Battery Materials, Nissan Tech Center North America Inc.

Direct cathode recycling enables recovery of end-of-life lithium-ion batteries while preserving the structural integrity of cathode materials. Demonstrated here is a novel, scalable separation technique that has the potential to produce high-purity cathodes with performance metrics comparable to commercial materials. It is crucial that these recovered cathodes meet next-gen EV targets. Cathode upcycling improves energy density, reduces reliance on raw material mining, and supports a circular supply chain.

11:30 Presentation to be Announced

12:00 pm Enjoy Lunch on Your Own

EV Battery Solutions

NEXT-GENERATION RECYCLING AND RECOVERY TECHNOLOGIES

12:55 Chairperson's Remarks

Ajay Kochhar, Head of Glencore Battery Recycling, Glencore

1:00 PANEL DISCUSSION: Building a Circular Battery Economy: Recycling, Reuse, and the Road Ahead

Moderator: Nathan Nye, Senior Manager, Battery Recycling, Battery Minerals & Metals, Tesla Motors

Industry leaders will discuss the current state of battery recycling and second-life applications, examining market realities, technology advances, policy drivers, and the partnerships needed to build a sustainable, economically viable circular battery economy.

Panelists:

Les Morgret, PhD, Head of Recycling, Commercial, R3 Lithium

Kathy Lett, Environmental Protection Specialist, OLEM & ORCR, US Environmental Protection Agency

Kandler Smith, PhD, Moment Energy

2:00 Post-Treatment Battery Recycling: Technologies, Markets, and the Path to Secure Supply Chains

Matthew Cooper, Vice President Business Development, USA & China, Green Li Ion

This presentation provides post-treatment recycling market insights, examining how post-treatment refining improves supply-chain security while navigating regulatory challenges. It reviews recycling routes for PCAM, MHP, lithium, and graphite, highlighting technical hurdles and quality gaps. Pyrometallurgical, hydrometallurgical, and non-solvent aqueous methods are compared to assess efficiency and sustainability. Finally, it outlines opportunities for next-generation recycling to meet regional minimum recycled-content requirements across evolving global battery supply chains and markets.

2:30 Refreshment Break

3:00 Improving Battery Affordability through Rejuvenation

Steve Sloop, PhD, President, OnTo Technology LLC

This presentation will discuss how whole battery rejuvenation can increase affordability and the market reach for advanced lithium-ion batteries. Battery service is a revolutionary concept that builds upon direct recycling approaches adapted to *in situ* use. Rejuvenation commercialization utilizes service to improve safety and lifetime providing industries options for servicing their fleet of batteries and reducing the risk of ownership.

3:30 A Unified Hydrometallurgical Platform for Battery-Grade Recovery from NMC and LFP Black Mass

Paolo Guida, PhD, Research Scientist, Clean Energy Research Center, King Abdullah University of Science & Technology

Introducing a proprietary hydrometallurgical recycling platform capable of processing both NMC and LFP black mass within a unified flowsheet characterized by extremely fast reactivity in all unit operations. Unlike conventional routes, the process selectively dissolves target metals while leaving most impurities in the solid residue, eliminating solvent extraction, reducing downstream purification, and enabling direct recovery of battery-grade products. Notably the process does not produce sodium sulfate but only salable products.

4:00 Advancing Data Transparency in Battery Recycling and Reuse

Antoni Tong, PhD, CEO, Smartville

Smartville has developed an integrated platform that enables the efficient assessment, trading, and repurposing of used EV batteries for second-life applications. Combining its proprietary Periscope diagnostic tool and battery-connect repurposing solution, Smartville helps recyclers, fleet operators, and energy developers to address retired EV batteries. This presentation will highlight the technology, data workflows, and real-world use cases that drive Smartville's mission to extend battery life, reduce waste, and unlock new value.

5:00 Close of Symposium



Lithium Battery Chemistry - Part 1

Advances in Lithium-ion and Commercialization

TUESDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

ADVANCING EVs AND BEYOND

7:50 Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

7:55 Chairperson's Remarks

Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

8:00 Next-Generation Lithium-ion Batteries and beyond for Enabling Future Electric Vehicles and Smart Grids

Khalil Amine, PhD, Group Leader, Advanced Battery Technology, Argonne National Laboratory

To enable long electric drive range for electric vehicles (EVs), there is a need to develop battery systems that offer at least 300 Wh/kg energy density or higher. In this talk, we will present a nickel rich and low cobalt cathode and novel high capacity Si/graphene anode with advanced electrolytes. We will also describe a novel doped sulfur system with a novel electrolyte that suppresses the dissolution of polysulfide species.

8:30 High-Energy Density Batteries to Electrify Aviation

Mohammad Asadi, PhD, Associate Professor, Illinois Institute of Technology

We have recently developed a unique solid-state composite polymer electrolyte capable of operating efficiently with lithium metal, opening new pathways for high-energy-density batteries. Proof-of-concept studies and detailed characterization have been performed in lithium-air, lithium-sulfur, and lithium-ion battery cells, demonstrating its versatility across multiple chemistries. In this presentation, I will highlight our latest findings and discuss the opportunities and challenges of implementing this electrolyte in advanced lithium-metal battery technologies.

9:00 Status of High-Energy Li-S Batteries for Electrification

Jun Liu, Pacific Northwest National Laboratory

This talk will highlight PNNLs and collaborators' ongoing research towards increasing the energy density, cycle life, and safety of lithium-sulfur batteries.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

IMPROVED BATTERY PERFORMANCE

10:10 Toward High-Performance Silicon Anodes: Investigating the Origins of Interfacial Instability

Robert Kostecki, PhD, Senior Scientist & Principal Investigator, Energy Storage & Distributed Resources, Lawrence Berkeley National Laboratory

Although the mechanical instability and volumetric fluctuation inherent to silicon anodes have already been largely mitigated, the calendar life of Si-based anodes remains a primary obstacle to the commercial viability of pure or Si-rich anodes. This presentation elucidates the fundamental relationships between the solid electrolyte interphase (SEI) and the operational efficacy of the Si anode in Li-ion batteries, focusing on the influence of film composition, morphology and topology.

10:40 Unexpected Gassing Phenomena in High-Voltage Li-ion Cells

Michael Metzger, PhD, Associate Professor, Dalhousie University

Interfacial reactions in Li-ion cells almost always generate gases. By measuring the quantity and type of gases we can understand these reactions. At Dalhousie University we built a novel multi-channel Online Electrochemical Mass Spectrometer that can sample gases from up to six battery cells simultaneously and enable electrolyte additive screening. We will explain how this system helps us to understand the reaction mechanisms of new additives for high-voltage Li-ion cells.

11:10 Presentation to be Announced

11:40 Networking Luncheon

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing

SOLID STATE & LITHIUM SULFUR

12:40 Chairperson's Remarks

Kimberly Branson, Vice President, Adden Energy Inc.

12:45 Zero Pressure Solid-State Chemistry

Kimberly Branson, Vice President, Adden Energy Inc.

Real world adaptation parameters for a solid-state battery that delivers.

1:15 Lithium-Free Anode Solid-State Batteries, 500 Wh/kg and Beyond

Eric Wachsman, PhD, Professor & Director, Materials Science & Engineering, University of Maryland College Park

We will present 100 mA/cm² current densities and 99.995% Li-cycling Coulombic efficiency using our novel 3D anode architecture and recently developed mixed ionic and electronic conducting garnet. By reducing dense layer thickness and incorporating higher energy density cathodes we will further show ≥500 Wh/kg full cell performance. All at room temperature with zero applied pressure.

1:45 Engineered Composition and Microstructure for Rechargeable Lithium-Sulfur Batteries

Ping Liu, PhD, Professor and Director, Sustainable Power and Energy Center, University of California, San Diego

The chemical and structural stability of sulfur cathodes in rechargeable lithium-sulfur batteries has been a persistent challenge. We have been focused on the development of sulfurized polyacrylonitrile (SPAN) as an alternative to elemental sulfur. In this talk, we will discuss the fundamental principles in composition and microstructure behind its stability as well as applying these principles to design composite sulfur/sulfide materials that offer higher capacities.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing

CATHODES

2:45 Decoding Hysteresis in LFP Batteries: Experimental Insights and Implications for Accurate State Estimation

Raman Nain, Senior Software Engineer Battery State Estimation, High Voltage, General Motors Co.

This presentation shares systematic experimental findings from CATL LFP cells, revealing that hysteresis decay is highly SOC-region-dependent, defying simple fixed-offset or symmetric-decay assumptions and introduces a core-shell particle model to probe whether SOC path history governs hysteresis magnitude. Results challenge the conventional C/100 midpoint OCV assumption at high SOC and provide a refined experimental framework.

3:15 Tuning Cathode Performance Metrics by Modulating Chemical Bonding

Arumugam Manthiram, PhD, George T. and Gladys H. Abell Endowed Chair of Engineering, Mechanical Engineering, University of Texas at Austin

Cathode in lithium-ion batteries is the most expensive, limits operating voltage and energy density, and contributes to safety. Chemical bonding, specifically the degree of covalence in metal-oxygen bond, plays a critical role on cell performance parameters, yet its role is largely obscured or ignored. This presentation will illustrate with examples how chemical bonding impacts the various battery performance parameters. The understanding will also be extended to emerging sodium-ion battery chemistry.

3:45 CELX: A Zero-Volt-Storable, High-Safety gMNC (LMR)/LTO Battery for Large-Scale Energy Storage: Comparative Performance and Cost Analysis

Kenan Sahin, President & Founder, CAMX Power

NCM formulations based on the GEMX cathode platform, invented by CAMX Power and licensed by many leading battery and cathode manufacturers, deliver strong electrochemical performance with minimal cobalt, 5% or less. A recent addition to GEMX is gMNC, a lithium- and manganese-rich cathode material (LMR) with about 60% manganese and 5% cobalt. Previously, CAMX Power demonstrated that gMNC/graphite batteries can achieve cost per kWh comparable to LFP/graphite systems for EVs, while offering broader performance advantages. We have paired the gMNC cathode with an LTO anode to create CELX, a zero-volt-storable, high-safety battery platform for large-scale energy storage. Comparative cost, performance, and safety data for CELX batteries for ESS will be presented, including comparisons to LFP-based storage systems.





Lithium Battery Chemistry - Part 1

Advances in Lithium-ion and Commercialization

4:15 The Battery Breakthrough That's Not a Battery: How Graphene Coatings Can Unlock Cathode Performance Today

Joseph Adiletta, Chief Executive Officer, Volexion

This talk will explain how drop-in graphene CAM coatings enable performance gains for cathode materials without disrupting existing production. He'll share lessons from real-world pilots and make the case that surface engineering, not new batteries, is the fastest path to a better battery industry.

4:15 Presentation to be Announced

4:45 Networking Reception in the Exhibit Hall with Poster Viewing

5:45 Close of Day



WEDNESDAY, DECEMBER 9

SILICON ANODES

7:30 am Registration and Morning Coffee

8:00 Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

8:05 Chairperson's Remarks

Gleb Yushin, PhD, Professor, Georgia Institute of Technology

8:10 Calendar Aging in Silicon-Rich Li-ion Batteries: Mechanisms and Mitigation

Xingcheng Xiao, PhD, Tech Fellow, Battery R&D, General Motors Co.

Silicon-rich lithium-ion batteries offer high energy density but face significant calendar-life challenges for automotive applications (>10 years). While substantial progress has been made in improving cycle life, long-term degradation during storage remains insufficiently understood and underreported. This talk highlights the key mechanisms driving calendar aging in silicon-based cells and reviews emerging mitigation strategies. It also presents an integrated characterization framework to accelerate optimization and enhance calendar-life performance.

8:40 Sponsored Presentation (Opportunity Available)

9:10 Disruptive Si/C Nanocomposite Anodes Poised for Market Dominance

Gleb Yushin, PhD, Professor, Georgia Institute of Technology

The pace of advancements in intercalation-type lithium-ion batteries (LIBs) has significantly slowed as conventional electrode materials approached their theoretical limits. By inventing and successfully commercializing chemical vapor deposition (CVD)-enabled nanostructured silicon/carbon (Si/C) composite materials (US Patents with 2009-2013 priorities: US 8,889,295B2; US 2014/0057179 A1; US20230343939A1), our team unlocked a new performance standard. This Si/C technology is quickly replacing graphite in commercial phones, drones, power tools, transportation and even grid.

9:40 High Energy, FEOC-Free, Dual-Use Li-ion Cell Architecture: Combining 100% Silicon Anodes and Aqueous NMC Cathodes

Rob Anstey, CEO and Founder, GDI



10:00 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY KEYNOTE

10:45 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech



10:50 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelly, Vice President, Battery, Propulsion, and Sustainability, General Motors

GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.



11:10 LG, Leading the Battery Expansion in North America

Robert Lee, President, North America, LG Energy Solution

LG Energy Solution is the leading lithium-ion battery manufacturer, working with the top OEMs globally in transforming the automobile industry. The market for EVs

is expanding rapidly, driven by both consumer demand and regulatory incentives. In North America, there are unprecedented levels of investment to support EVs, by both OEMs and battery manufacturers. This presentation will discuss market growth projections, announced expansion plans, and the challenges ahead.

11:30 PLENARY PANEL DISCUSSION: Same Road, New Rules: EV, ICE, and the Race to Redefine Automotive Value



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

Technology disruption is rewriting the automotive playbook—accelerating innovation cycles, compressing model timelines, and redrawing manufacturing footprints across both EV and ICE platforms. This incisive panel discussion featuring leaders from key organizations examining which features matter most in today's market and where the industry is headed. The conversation will also confront a defining tension: intensifying price pressure colliding with a thriving luxury segment—reshaping fortunes for iconic brands and ambitious newcomers alike.

Panelists:

Troy Hayes, PhD, Director of Quality, Tesla

Ted Miller, Senior Principal Advisor, Pacific Northwest National Laboratory

12:20 pm Networking Luncheon

1:10 Dessert Break in the Exhibit Hall with Poster Viewing

1:40 Close of Track





ENGINEERING

Battery Engineering

Better Batteries through Safety, Cell Design, and Intelligent Management

December 8-9, 2026 | San Diego, CA

TUESDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

OEM PERSPECTIVES

7:50 Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

7:55 Chairperson's Remarks

Ahmad Mayyas, PhD, Professor, Industrial & Systems Engineering, Khalifa University

8:00 Development of *in situ* Status Diagnostic Indicator and Abnormal Detection Technology for Electric Vehicle Batteries Using Swelling Sensor Signals

Jaeyoung Lim, PhD, Senior Research Engineer, CV Virtual Development Team, Hyundai Motor Company

This work presents an *in situ* diagnosis system of large capacity lithium-ion battery based on a sponge-type battery swelling sensor, which is appropriate for battery module-level integration. In addition, developed swelling sensor was applied for battery cell and module level monitoring. The sensor could monitor the battery swelling under changing state-of-charge (SOC) with various current rates (C-rates) from 0.1C to 2C.

8:30 Challenges of Integrating Solid-State Batteries

Terry Kim, PhD, Innovation Project Lead, Stellantis

Recent trends in solid-state battery (SSB) development and the challenges of scaling cell-level performance to pack-level performance across various architectures and target applications are discussed. Critical integration considerations for SSB cells are highlighted, including cell stacking, compression, thermal management, and the design of busbars and pack structures to address the unique mechanical and electrochemical behaviors of solid-state battery cells and systems.

9:00 Materials-Informed Pack Safety Design to Suppress Thermal-Runaway Propagation across LFP and NMC Cells

Tomohiro Kawai, PhD, Senior Chief Scientist & Leader, Product Design, Mitsubishi Chemical Corp.

Naoya Ninomiya, PhD, Mitsubishi Chemical Corporation

This presentation explores the fundamentals of EV battery pack safety design through thermal-runaway behavior observed in LFP and NMC cells. Internal reactions, external combustion, air entrainment, ignition sources, and vented gases and electrolyte mist are treated as interacting factors governing propagation. These insights are translated into materials-informed design principles for controlling heat transfer, oxygen ingress, flammable mixtures, and pack component combinations.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

ESTIMATING SOC AND SOH

10:10 Estimating Electrode State of Charge (eSOC) in Real Time

Gregory L. Plett, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

A cell's OCV relationship significantly affects SOC estimates produced by feedback estimators (e.g., Kalman filters). As a cell ages, its OCV changes, causing SOC-estimate inaccuracies if a constant OCV relationship is assumed. This talk presents a method to estimate individual electrode states of charge (eSOC) for the cell's anode and cathode. These eSOC estimates support diagnostics and can be combined to improve accuracy of cell-scale SOC estimates as well.

10:40 Accurate and Efficient State-of-Power Computation for Automotive Battery Applications

Scott Trimboli, PhD, Professor, Electrical & Computer Engineering, University of Colorado, Colorado Springs

This presentation introduces an optimization-based framework for finite-horizon state-of-power (SOP) computation for lithium-ion batteries using coupled electro-thermal (CET) models. The algorithm computes maximum charge/discharge power sustained over a specified horizon while satisfying operational constraints. The constant-power requirement introduces a nonlinear relation between voltage and current, resulting in a nonconvex optimization problem. To address this, the bilinear constraint is relaxed using McCormick envelopes, yielding a computationally efficient formulation for on-board applications.

11:10 Presentation to be Announced



11:40 Networking Luncheon

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing

BATTERY SAFETY

12:40 Chairperson's Remarks

Judy Jeevarajan, PhD, Vice President and Executive Director, Electrochemical Safety Research Institute, UL Research Institutes

12:45 From Lighter Vehicles to Smarter Batteries: A Pathway for Sustainable EV Battery Design

Ahmad Mayyas, PhD, Professor, Industrial & Systems Engineering, Khalifa University

This study examines how vehicle lightweighting can enable battery resizing in battery electric vehicles, reducing battery-pack mass, manufacturing emissions, cost, and critical mineral demand without sacrificing driving range. Using an integrated modeling framework that links vehicle mass, drive-cycle energy demand, battery capacity, and chemistry selection, the study compares lithium-ion, sodium-ion, and solid-state battery pathways.

1:15 Design and Manufacturing of Intelligent Multifunctional Energy Storage Composites for EV and e-VTOL Applications

Fu-Kuo Chang, PhD, Professor, Aeronautics & Astronautics, Stanford University

This paper presents an integrated design-to-fabrication framework for lightweight multifunctional energy-storage composites (MESCs) for eVTOL and EV. Developed in collaboration with Acellent Technologies, the framework combines multiphysics design optimization, robust structural-battery manufacturing, and real-time battery and structural health monitoring. Compared with conventional cell-to-pack systems, the technology targets 30% weight savings, 40% additional usable volume, and a 50% increase in flight range while maintaining aircraft safety and reliability.

1:45 Impact of State of Charge on Thermal Runaway Risk: Implications for Recall Mitigation Strategies

Keith Beers, PhD, Practice Director and Principal Engineer, Materials Science and Electrochemistry, Exponent

State-of-charge (SOC) can play a critical role in both the likelihood and severity of lithium-ion battery failures, yet its practical application in field mitigation strategies remains underexplored. This presentation examines how SOC influences runaway initiation and propagation in automotive-relevant cells, supported by controlled abuse testing data. The findings are contextualized within real-world recall strategies, including temporary and permanent SOC limitations.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing

THERMAL RUNAWAY

2:45 Slowing the Clock: Thermal Management's Role in Extending Li-ion Battery Cycle Life

Jacob Faulkner, PhD, Chemical Engineer, Naval Surface Warfare Center

This study investigates thermal management strategies for lithium-ion batteries operating under high-stress load profiles, highlighting the influence of temperature evolution on cell aging. The results demonstrate that effective heat transfer mechanisms can slow aging kinetics and extend cell cycle life. However, the findings also reveal that even when heat is efficiently removed from the cell surface, elevated internal temperatures may persist, continuing to accelerate degradation and reduce battery longevity.



ENGINEERING

Battery Engineering

Better Batteries through Safety, Cell Design, and Intelligent Management

December 8-9, 2026 | San Diego, CA

3:15 Predicting Thermal Runaway Propagation: A Calibration and Validation Methodology for Multi-Format Battery Modules

Ofodike Ezekoye, PhD, Professor, Mechanical Engineering, University of Texas at Austin

Thermal runaway propagation remains a critical safety challenge for lithium-ion battery modules across cell formats and applications. This presentation describes a calibration and validation methodology for predicting propagation in cylindrical, pouch, and prismatic cell modules. The approach combines targeted experiments, heat transfer modeling, and uncertainty aware parameter estimation to connect cell level behavior to module scale outcomes. This framework streamlines battery design and the development of robust safety mitigation strategies.

3:45 Guarded Heat Flow Apparatus to Measure Thermal Conductivity at Extreme Temperatures and Pressures

Jeff Hwang, Advanced Testing Specialist, Transportation and Electronics Group Lab (TEGL), 3M

Alex Bourque, Data Science Specialist, Corporate Research Analytical Lab (CRAL), 3M

3M has developed a High Temperature/Pressure Thermal Conductivity (HTP-TC) instrument to address limitations in existing thermal conductivity measurement methods for insulative materials used in EV battery packs. The instrument uses a guarded heat flow design with integrated heat flux sensors. It has been validated up to 750 °C and 2 MPa, showing strong agreement in the regime of overlap with available test equipment and delivering credible performance at previously inaccessible conditions.



4:15 Efficacy of Various Suppressants for Lithium-ion Battery Fires in Confined Spaces

Judy Jeevarajan, PhD, Vice President and Executive Director, Electrochemical Safety Research Institute, UL Research Institutes

Thermal runaway and fires with Lithium-ion batteries have been a significant concern in the past few decades as the proliferation of batteries of this chemistry in various sectors has risen exponentially. At ESRI, research into various aspects of mitigating and suppressing the thermal runaway and associated fire has been a major focus. Recent research has focused on determining the efficacy of various suppressants to suppress Li-ion battery fires in confined spaces.

4:45 Networking Reception in the Exhibit Hall with Poster Viewing

5:45 Close of Day

WEDNESDAY, DECEMBER 9

7:45 am Registration and Morning Coffee

THEORY TO COMMERCIAL USE

8:20 Chairperson's Remarks

Yatish Patel, PhD, Fellow, Mechanical Engineering, Imperial College London

8:25 Multi-Timescale Electricity Cost Optimization for Commercial Buildings Using EV Second-Life Battery as Energy Storage Systems

Chris Mi, PhD, Fellow, IEEE & SAE, Distinguished Professor, San Diego State University

This talk proposes a multi-timescale electricity cost optimization framework for battery energy storage systems and validates it on a real-world deployed second-life EV battery system. We adopt an upper-layer hourly model predictive control with a rolling horizon for long-term energy arbitrage, and a lower-layer real-time control to mitigate short-term power peaks. Comprehensive validation using 12 months of real-world operational data demonstrates a 28.6% electricity-cost reduction compared to no-storage operation.

8:30 Sponsored Presentation (Opportunity Available)

9:00 Can Sparse Temperature Sensing Reliably Detect Thermal Runaway? Bridging the Gap between Theory and Commercial Battery Packs

Yatish Patel, PhD, Fellow, Mechanical Engineering, Imperial College London

This talk evaluates how effective these low-cost temperature measurements are for early fault detection, using a combined modeling and experimental approach. It critically compares temperature-based diagnostics with alternative sensing methods, demonstrating that despite limitations, temperature sensing remains the most viable solution for scalable, cost-constrained battery management systems.

9:30 Sponsored Presentation (Opportunity Available)

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY KEYNOTE

10:45 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech



10:50 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelly, Vice President, Battery, Propulsion, and Sustainability, General Motors

GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

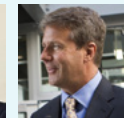
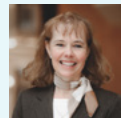


11:10 LG, Leading the Battery Expansion in North America

Robert Lee, President, North America, LG Energy Solution

LG Energy Solution is the leading lithium-ion battery manufacturer, working with the top OEMs globally in transforming the automobile industry. The market for EVs is expanding rapidly, driven by both consumer demand and regulatory incentives. In North America, there are unprecedented levels of investment to support EVs, by both OEMs and battery manufacturers. This presentation will discuss market growth projections, announced expansion plans, and the challenges ahead.

11:30 PLENARY PANEL DISCUSSION: Same Road, New Rules: EV, ICE, and the Race to Redefine Automotive Value



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

Technology disruption is rewriting the automotive playbook—accelerating innovation cycles, compressing model timelines, and redrawing manufacturing footprints across both EV and ICE platforms. This incisive panel discussion featuring leaders from key organizations examining which features matter most in today's market and where the industry is headed. The conversation will also confront a defining tension: intensifying price pressure colliding with a thriving luxury segment—reshaping fortunes for iconic brands and ambitious newcomers alike.

Panelists:

Troy Hayes, PhD, Director of Quality, Tesla

Ted Miller, Senior Principal Advisor, Pacific Northwest National Laboratory

12:20 pm Networking Luncheon

1:10 Dessert Break in the Exhibit Hall with Poster Viewing

1:40 Close of Track

High-Performance Battery Manufacturing

Advanced R&D for the Manufacturing of Safe, Efficient, Higher Energy Density Batteries

TUESDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

ADVANCES IN CELL MANUFACTURING

7:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

7:55 Chairperson's Remarks

Daniel Abraham, PhD, Senior Materials Scientist, Argonne National Laboratory

8:00 Eliminating Charging Bottlenecks in Li-ion Batteries: The Synergy of 3D-Structured Electrodes for Fast Charging, High Energy Density, and Cost Reduction

Andrew Davis, PhD, CEO, Arbor Battery Innovations

Arbor Battery Innovations' high-speed laser process introduces 3D vertical diffusion channels into ultra-thick electrodes, decoupling energy density from charge rate. This "drop-in" manufacturing technology integrates seamlessly into existing gigafactory workflows and can be rapidly and inexpensively scaled. Our architecture enables 6C fast-charging in high-loading cells (>300 Wh/kg) while suppressing lithium plating at temperatures as low as -10°C without requiring auxiliary heating.

8:30 Performance, Plating, and Gassing in Sodium-ion Batteries

Daniel Abraham, PhD, Senior Materials Scientist, Argonne National Laboratory

Sodium-ion batteries are attracting increasing interest due to their cost-effectiveness, sustainability, and supply-chain resilience. This presentation examines degradation in cells with layered-oxide cathodes, hard-carbon anodes, and carbonate electrolytes. Three-electrode measurements are used to assess capacity fade, impedance rise, and voltage-profile changes, while operando X-ray techniques provide direct insight into sodium plating. Gas evolution during pouch-cell testing will also be discussed.

9:00 Development and Manufacturing of High-Safety, High-Energy-Density, Ultrafast-Charging Li-ion Battery

Tim Lin, PhD, CTO and Founder, Solid Energies

We present the development and manufacturing of a next-generation lithium-ion battery that simultaneously achieves three critical performance attributes: high safety, high energy density (~300 Wh/kg), and ultrafast charging (~6 minutes to 80% state of charge); overcoming current trade-offs (high-energy cells charge slowly and pose thermal runaway risks, while fast-charging cells sacrifice energy density) by integrating advanced electrode materials, novel non-flammable electrolytes, and intelligent cell processing compatible with today's Li-ion production infrastructure.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

10:10 Sponsored Presentation (*Opportunity Available*)

10:40 PANEL DISCUSSION: Federal Initiatives and Policy Horizons for Battery Traceability and Supply-Chain Resilience

Moderator: Thomas Do, Technology Manager, Transportation Technologies Office, U.S. Department of Energy

This panel features government representatives discussing the critical landscape of battery traceability and supply-chain security. Panelists will examine ongoing government supply-chain initiatives alongside emerging federal regulations, tax incentives, and national security policies. Focusing on domestic resilience and risk mitigation, the discussion highlights the government's role and strategic vision in securing, standardizing, and bolstering tomorrow's battery supply chains.

Panelists:

Michael Wang, PhD, Group Center Director & Distinguished Fellow, Systems Assessment Center, Argonne National Laboratory

11:40 Networking Luncheon

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing

ADVANCES IN CELL MANUFACTURING

12:40 Chairperson's Remarks

Craig Rigby, Board Member, CONovate

12:45 The ARTISTIC Platform: Real-Time AI and Multiscale Modeling for Accelerated Battery Manufacturing

Alejandro Franco, PhD, Professor, Université de Picardie Jules Verne

In this presentation, I will introduce the latest advancements from our 13+ year ARTISTIC research initiative, predicting how manufacturing machinery parameters dictate lithium-ion electrode performance. By coupling rigorous pilot line-validated physics-based simulations with advanced deep learning surrogates, we simultaneously capture macroscopic production machine conditions and local electrode mesostructures. Attendees will discover how this integrated modeling strategy unlocks new pathways for real-time AI-driven process optimization and accelerated battery manufacturing.

1:15 Next-Generation Coated Separators: Enabling Functionality through Microstructural Control

Weston Wood, PhD, Polymer Scientist, R&D, ENTEK

Increasing demands on lithium-ion batteries for EV and ESS applications require significant improvements in coated separator performance. In this work, ceramic and polymer coatings are evaluated for their ability to improve thermal stability and electrolyte wettability while maintaining low impedance. Discontinuous adhesive coating designs are investigated for reducing interfacial resistance and enhancing electrolyte accessibility. Correlations between pore morphology, rate capability, and low temperature operation are discussed.

1:45 Introduction of the Beff Navigator: DX Development Acceleration Platform to Shorten Time to Market

Shunsuke Amagai, Founder & Co-CEO, Beff

Beff delivers integrated solutions from design to mass production using deep lithium-ion expertise. Beff Navigator accelerates material and cell development with a rapid end-to-end process—from concept and specification design to prototyping, testing, and validation—enabling faster time to market. Our professional engineers provide expert support for precise specifications, high-quality prototyping and testing, and advanced analysis. This presentation will highlight our methodologies and real-world applications using the Beff Platform.

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing

2:45 Advanced Materials for EMSI and HF Scavenging

Benjamin Christian, New Product Development Engineer, Freudenberg-NOK Sealing Technologies

A summary of advanced material development activities at Freudenberg to address the damage and reduced cycle life caused by HF production and salt inhomogeneity.

3:15 Sponsored Presentation (*Opportunity Available*)

STRATEGIC INDUSTRY OUTLOOK

3:45 PANEL DISCUSSION: Hope Is Not a Strategy: What Does It Really Take to Drive Innovation from Discovery to Industrialization across Battery Technologies and Material Supply Chains

Moderator: Craig Rigby, Board Member, CONovate

This panel will focus on lessons learned from lithium-ion development over the past decades, discuss what works well in the current innovation ecosystem, and identify potential options for improving outcomes going forward. Concepts including funding models for start-ups, industrial policy to prioritize western industrialization, bankable business models, and appropriate government support for both capacity deployment and demand signals will be discussed.

Panelists:

Samm Gillard, Vice President, SMI

Mike O'Kronley, CEO, Ascend Elements

4:45 Networking Reception in the Exhibit Hall with Poster Viewing

5:45 Close of Day

WEDNESDAY, DECEMBER 9

7:45 am Registration and Morning Coffee

STRATEGIC INDUSTRY OUTLOOK

8:20 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

High-Performance Battery Manufacturing

Advanced R&D for the Manufacturing of Safe, Efficient, Higher Energy Density Batteries

8:25 Chairperson's Remarks

Benjamin Christian, New Product Development Engineer, Freudenberg-NOK Sealing Technologies

8:30 Talent, Transformers, and Tariff Relief: Finding US Sites Built with Skilled Labor, Max Incentives, and Grid Strength

Tom Croteau, Senior Managing Director, Maxis Advisors

Discover how battery and advanced manufacturing companies can identify US sites offering the optimal mix of skilled labor, robust electric infrastructure, top-tier incentives, and tariff protection. This session explores key criteria, emerging hotspots, and strategic considerations for choosing locations primed for growth, resilience, and long-term competitive advantage.

BATTERY SAFETY

9:00 Liquid, Solid, and Semi-Solid Batteries with Focus on Battery Safety

John Zhang, PhD, CTO/CSO, Polypore International

This presentation will address the safety behavior and underlying mechanisms of SSBs, with direct comparison to liquid-state batteries (LSBs). Testing results show that, during internal shorts in high-energy systems, the severity of fire and explosion follows the order: SSB > LSB. The data indicate a counterintuitive trend—the greater the liquid content in the battery, the safer its behavior under abuse conditions.

9:30 Sponsored Presentation (Opportunity Available)

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY KEYNOTE

10:45 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech



10:50 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelty, Vice President, Battery, Propulsion, and Sustainability, General Motors

GM has established a foundation to accelerate the investment in—and development of—battery technology with a robust supply chain to support its growth over the next decade. In this talk, Kurt will discuss GM's strategies for investing in new technologies and how its in-house capabilities enhance those efforts, with an overview and rationale behind key investments made to date.

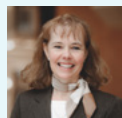


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Robert Lee, President, North America, LG Energy Solution

LG Energy Solution is the leading lithium-ion battery manufacturer, working with the top OEMs globally in transforming the automobile industry. The market for EVs is expanding rapidly, driven by both consumer demand and regulatory incentives. In North America, there are unprecedented levels of investment to support EVs, by both OEMs and battery manufacturers. This presentation will discuss market growth projections, announced expansion plans, and the challenges ahead.

11:30 PLENARY PANEL DISCUSSION: Same Road, New Rules: EV, ICE, and the Race to Redefine Automotive Value



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

Technology disruption is rewriting the automotive playbook—accelerating innovation cycles, compressing model timelines, and redrawing manufacturing footprints across both EV and ICE platforms. This incisive panel discussion featuring leaders from key organizations examining which features matter most in today's market and where the industry is headed. The conversation will also confront a defining tension: intensifying price pressure colliding with a thriving luxury segment—reshaping fortunes for iconic brands and ambitious newcomers alike.

Panelists:

Troy Hayes, PhD, Director of Quality, Tesla

Ted Miller, Senior Principal Advisor, Pacific Northwest National Laboratory

12:20 pm Networking Luncheon

1:10 Dessert Break in the Exhibit Hall with Poster Viewing

1:40 Close of Track



Global Battery Raw Materials

Balancing Supply, Demand & Costs for Battery Component Materials

TUESDAY, DECEMBER 8

7:00 am Registration and Morning Coffee

GLOBAL DEMAND FOR BATTERY RAW MATERIALS

7:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

7:55 Chairperson's Remarks

Rob Price, Senior Global Key Account Manager, EV Volumes

8:00 Lithium in North America: Market Trends & Price Dynamics

Katharine De Senne, Price Reporter, Battery Materials, S&P Global

The global lithium market has experienced volatility over the last years. As the energy transition matures, understanding these complex price dynamics and regional supply-chain shifts is critical for industry stakeholders. In this session, Katharine De Senne, Battery Metals Price Reporter at Platts (S&P Global Energy), will unpack the current state and future trajectory of lithium in North America.

8:30 From Graphite Bottlenecks to Anode Diversification: What Can Actually Change by 2030

Urvi Mehta, Senior Research Associate, Energy Storage, Lux Research

Graphite remains one of the weakest links in battery supply chains, with exposure across natural graphite mining and China-dominated purification and synthetic graphite capacity. This talk separates near-term risks from longer-term anode shifts, covering natural versus synthetic graphite, supplier qualification, cost and emissions trade-offs, silicon adoption limits, and recycling's limited role before 2030. It will outline practical mitigation paths for automakers, cell makers, and investors.

9:00 4th Generation LFP: The Quiet Revolution

Taylor Shively, Principal Consultant, CRU Group

4th generation LFP constitutes a technological breakthrough and a fundamentally higher cathode material standard. Its emergence has far-reaching implications that could upheave global battery investments, supply-chain structures, market competition, and geopolitics. Taylor will especially examine the shift in lithium feedstock preferences and the wider impact on the lithium industry.

9:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

10:10 Electric Vehicle Battery Supply Chain and Carbon Footprint Implications

Michael Wang, PhD, Group Center Director & Distinguished Fellow, Systems Assessment Center, Argonne National Laboratory

The global nature of the EV battery supply chain affects the carbon intensities and the economics of batteries. Argonne National Laboratory has been simulating global battery production with its R&D GREET model. This presentation will cover variations in the carbon intensities of the global battery supply chain.

10:40 Applications for Direct Lithium Extraction Technologies in the Lithium Triangle Region of South America

Emilio Bunel, PhD, Professor, Catholic University of Chile

The Lithium Triangle hosts over half of the world's lithium brine resources and is critical to the energy transition. Conventional evaporation processes face limitations including long processing times, moderate recoveries, high land use, and water impacts. Direct Lithium Extraction (DLE) technologies offer higher recoveries, lower environmental footprint, and greater operational flexibility. This presentation reviews selected DLE technologies under evaluation for deployment across representative salars in the region.

11:10 Presentation to be Announced

11:25 Sponsored Presentation (Opportunity Available)

11:40 Networking Luncheon

12:10 pm Dessert Break in the Exhibit Hall with Poster Viewing

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GLOBAL DEMAND FOR BATTERY RAW MATERIALS

12:40 Chairperson's Remarks

Katharine De Senne, Price Reporter, Battery Materials, S&P Global

12:45 Domestically Sourced Anode Additives to Address LFP Balancing Issues in BESS

Carol Hirschmugl, PhD, Founder & CEO, COnovate

COnovate offers battery cell manufacturers a cost-effective, drop-in anode additive for LFP cells used in battery energy storage systems (BESS) and other applications. This solution will provide an elegant, fundamental way to accurately correct SOC during normal operations. The result will be reduced operating costs for system owners, lower capex through right-sizing the system, and reduced warranty exposure across the value chain for BESS applications.

1:15 Addressing North America's Critical Midstream Vulnerability: The Case for Domestic pCAM

Marco Romero, Founder & CEO, Positive Materials

Despite the North American battery industry continuing to expand, with major cell plants coming online throughout 2026 and beyond, the region remains 100% exposed to foreign imports of precursor cathode active materials (pCAM). Project Positive+ directly mitigates this risk by onshoring a commercially proven, scalable pCAM manufacturing solution to North America, securing regional supply-chain sovereignty.

1:45 Supply Chain & The Importance of Investing in the Midstream

Phoebe Bisnoff, Project Manager, CALSTART

Downstream cell and pack manufacturing efforts have surged in the US but the midstream—processing critical materials into cathode, anode, separator, and electrolytes—remain the domestic industry's missing link. With increased importance in on-shoring domestic battery production and reducing reliance on foreign supply chains, how is targeted midstream investment a strategic imperative?

2:15 Refreshment Break in the Exhibit Hall with Poster Viewing

2:45 Breaking the Midstream Rut: From Upstream Critical Minerals to Value-Added Commodities

Kimberly Berman, Independent Consultant, Pivot Research

The high dependency on China and Chinese companies for key material inputs, especially in today's geopolitical environment, will continue to constrain the global battery-chemistry sector regardless of chemistry. Critical mineral policies haven't spurred the necessary investment in boots-on-the-ground advanced chemical infrastructure needed to reduce the risks impeding EV production in North America. This talk will provide solutions to key bottlenecks impacting the energy transition.

3:15 Sponsored Presentation (Opportunity Available)

3:45 PANEL DISCUSSION: The Details of a Domestic Supply Chain

Moderator: Celina Mikolajczak, Advisor to the Battery Industry

This panel of raw material and active material developers will discuss the economics of ramping domestic material supply chains, and where government support would be most impactful.

4:45 Networking Reception in the Exhibit Hall with Poster Viewing

5:45 Close of Day

WEDNESDAY, DECEMBER 9

7:45 am Registration and Morning Coffee

MARKET OPPORTUNITIES IN BATTERY RAW MATERIALS

8:20 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:25 Chairperson's Remarks

Marco Romero, Founder & CEO, Positive Materials

Global Battery Raw Materials

Balancing Supply, Demand & Costs for Battery Component Materials

8:30 Green Growth in North America: Technology and Inflation in a Tariff Economy

Chris Berry, Founder & President, House Mountain Partners

The amount of geopolitical tumult impacting the financial and clean-energy markets is unprecedented, and many think we are watching a movie we've never seen before. Higher interest rates, volatile metals prices, and policy uncertainty are three of a number of issues that are impacting the pace and trajectory of electrification. This presentation explores the impacts of all three and offers a way forward given that uncertainty is guaranteed.

8:50 The Rechargeable Battery Market 2026-2035—Significant Changes in North America in Applications and Emerging Technology

Christophe Pillot, PhD, Director, Avicenne Energy

Michael Sanders, Senior Advisor, Energy, Avicenne Energy

Avicenne Energy will be presenting the major changes in electrification in ever-expanding applications that will drive broader demand than just EV and emerging technologies which are becoming more available. Presentation will be focused on North America, but also highlight how the regions value chain is structured vs. other regions. Forecasts will cover both global and North American perspectives.

9:10 Global EV Market Demand: In-Depth Insights, Future Projections, and the Impact on the Battery Supply Chain

Rob Price, Senior Global Key Account Manager, EV Volumes

A comprehensive analysis of the latest data and trends in the EV industry—designed to deepen your knowledge and help you stay ahead in the rapidly changing global EV market.

9:30 Sponsored Presentation (Opportunity Available)

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY KEYNOTE

10:45 Chairperson's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech



10:50 How GM Is Driving Battery Development and Enabling an All-EV Future

Kurt Kelly, Vice President, Battery, Propulsion, and Sustainability, General Motors

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12:20 pm Networking Luncheon

1:10 Dessert Break in the Exhibit Hall with Poster Viewing

1:40 Close of Track





Lithium Battery Chemistry - Part 2

Next-Generation Energy Storage, Lithium-ion, and Beyond

WEDNESDAY, DECEMBER 9

CATHODE

1:40 pm Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

1:45 Chairperson's Remarks

Jay Whitacre, PhD, CEO/CTO, Stratus Materials; Full Professor, Materials Science and Engineering, Carnegie Mellon University

1:50 LFP/LMFP Synthesis

Mickael Dollé, PhD, Professor, Department of Chemistry, Université de Montréal

Conventional LFP/LMFP synthesis via solid-state or hydrothermal routes demands fine precursors and slow, costly processing. Unlike oxide cathodes, LFP/LMFP has a low congruent melting point, enabling a homogeneous molten medium for rapid, thermodynamically-driven reactions. Our patented melt-synthesis process exploits this, achieving synthesis within minutes while tolerating diverse precursor chemistries, purities, and morphologies. This flexibility lowers environmental impact and simplifies recycling of off-spec and spent-battery materials.

2:20 High-Energy Density, Co-Free LMR Batteries with over 1000 Cycles

Jay Whitacre, PhD, CEO/CTO, Stratus Materials; Full Professor, Materials Science and Engineering, Carnegie Mellon University

LMR materials historically exhibit persistent voltage fade, and require tailored electrolytes. Stratus Materials has developed an efficient and low-cost processing route that creates crystallographically stable cobalt-free LMR, called LXMO. Data will be disclosed showing that LXMO-based large-format cells (20Ah and larger) can exhibit energies of over 700 Wh/l, and cycle-life stability of over 2000 cycles. Lower energy density versions can compete economically with LFP cells in stationary use cases.

2:50 LMFP Material Technology and Cell Performance

Vincent Hsin-Ta Huang, Senior Manager, R&D, HCM Co., Ltd.



3:15 Presentation to be Announced



3:20 Refreshment Break in the Exhibit Hall with Poster Viewing

4:00 New Technology for Zinc Rechargeable Batteries Capable of Thousands of Charge-Discharge Cycles

Masatsugu Morimitsu, Dr.Eng., Professor, Department of Science of Environment and Mathematical Modeling, Doshisha University; CTO, HEW NEXUS Co., Ltd.

This talk presents the charge-discharge cycling performance of ZnNi rechargeable batteries using a new technology to suppress non-uniform reaction distribution of the anode which is the main reason of zinc dendrite generation and growth. The technology provides an excellent rechargeability for thousands of cycles without internal short circuit and capacity loss.

4:30 Scalable Sulfide Solid Electrolyte Powder Coatings for Improved Performance and Manufacturability

Justin Connell, PhD, Materials Scientist, Materials Science, Argonne National Lab

Despite significant promise, widespread adoption of sulfide solid-state electrolytes (SSEs) is hindered by processability in manufacturing environments and lifetime/performance limitations due to (electro)chemical instability. We have developed an approach where ultrathin (≈ 1 nm) coatings stabilize sulfide SSE powders to aggressively oxidizing atmospheres while significantly improving electrochemical performance. This scalable approach (up to 100 g/batch achieved) enables a new framework for accelerating integration of sulfide SSEs into next-generation solid-state batteries.

5:00 Ultra High-Speed Mixing-Induced Halide Segregation to Boost All-Solid-State Lithium Chalcogen Batteries

Gui-Liang Xu, Chemist, Chemical Sciences & Engineering, Argonne National Laboratory

Here we will introduce a new halide segregation approach process to improve solid-solid interface in all-solid-state batteries. Such halide segregation is universal at interfaces across various halogen-containing solid-state electrolytes and a family of high-energy chalcogen cathodes enabled by mechanochemical reaction during ultrahigh-speed mixing. Various all-solid-state lithium-chalcogen cells demonstrate utilization close to 100% and extraordinary cycling stability at commercial-level areal capacities.

5:20 Close of Day

THURSDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

SOLID-STATE

8:50 Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

8:55 Chairperson's Remarks

Alex Louli, PhD, Senior Applications Engineer, QuantumScape

9:00 Commercializing Lithium-Metal Battery Technology for Electric-Vehicle Applications

Alex Louli, PhD, Senior Applications Engineer, QuantumScape

The next generation of energy storage is being driven by breakthrough solid-state battery technology that overcomes the fundamental limitations of conventional lithium-ion batteries, enabling longer range, faster charging, and enhanced safety through advanced ceramic separator technology. The current challenge facing those developing this technology is commercialization at a global scale to meet the massive global battery demand. This presentation addresses the unique commercialization strategies to bring this technology to market.

9:30 Dry Extrusion for Solid-State Battery R&D and Semi-Industrial Prototyping

Victoire De Margerie, PhD, Executive Chairman, Rondol Industrie SAS

9:50 Safety and Manufacturability of Semi-Solid-State Li-Metal Batteries with Ultra-Thin Anode

Alex Kosyakov, Co-Founder & CEO, Natrium Inc.

Natrium is the manufacturer of Active Separator, a thin, flexible solid-state electrolyte separator for lithium secondary batteries. Natrium will present its latest validation of the performance and safety of semi-solid lithium-metal batteries pairing Active Separator with 5-20 micrometer-thick lithium-metal anodes. This will include cyclability of high-capacity pouch cells at ambient temperatures and pressures (zero clamping) demonstrating 1000+ Wh/L, 400+ Wh/kg energy densities, as well as independent abuse testing results.

10:10 High-Energy Li-ion Batteries Enabled by Aqueous Catholytes

Steven Visco, PhD, CEO & CTO, PolyPlus Battery

The push toward solid-state lithium batteries is driven by two narratives: improved safety and higher energy density. In this presentation, we describe progress toward exactly that: a lithium battery in which a ceramic membrane decouples the lithium-based anode from an aqueous catholyte, combining the safety of water-based systems with the voltage and capacity of lithium electrochemistry.

10:30 Coffee and Bagel Break in the Exhibit Hall. Last Chance for Poster Viewing

ADVANCED ELECTROLYTES

11:00 Development of Molecular, Liquid, and Solid-State Electrolytes for High-Voltage Lithium Batteries

Yaser Abu-Lebdeh, PhD, Senior Research Officer & Team Leader, Clean Energy Innovation Research Center, National Research Council Canada

Lithium Battery Chemistry - Part 2

Next-Generation Energy Storage, Lithium-ion, and Beyond

The talk will highlight strategies to control ion solvation, engineer stable electrode-electrolyte interphases, and mitigate dendrite formation in lithium metal cells. Examples from recent research will illustrate how electrolyte chemistry (e.g. dinitriles, sulfones, ethers) can unlock the performance of next-generation high-voltage cathodes and lithium metal anodes.

11:30 Fast Chemical Physics Platform for Battery Electrolyte Characterization and Optimization

Kevin L. Gering, PhD, Distinguished Staff Scientist, Energy Storage Technologies, Idaho National Laboratory

The Advanced Electrolyte Model (AEM) is such a tool that is both fast and accurate, owing to its chemical physics platform that covers broad ranges of solvent composition, salt concentration, and temperature. AEM generates over 100 property metrics per run, with typical runs taking less than five seconds to complete. Complex multi-solvent electrolytes can be optimized through AEM using more than a dozen optimization parameters.

12:00 pm How CEA's Battery Prototyping Capabilities Accelerate Industry Growth

Hélène Porthault, PhD, Research Engineer, CEA-Tech LITEN

CEA's battery facilities provide a unique framework for scaling up innovative technologies. The battery prototyping and processing laboratory can produce electrodes from small-format to industry-relevant sizes. This integrated approach allows the evaluation of electrochemical performance, but also the assessment of material processability, slurry formulation, and electrode manufacturing compatibility. The value of this scale-up strategy will be illustrated through CEA's industrial collaboration with TokaiCobex-Savoie, a French producer of synthetic graphite grades.

12:30 Enjoy Lunch on Your Own

SILICON ANODE

1:30 Chairperson's Remarks

Martin Winter, PhD, Director & Professor, Electrochemical Energy Technology, University of Muenster

1:35 Maximizing High Silicon Anode Performance

Manuel Wieser, CTO, AnteoTech Ltd.

Binders and additives, though a small part of anode compositions, play a crucial role in achieving a long cycle life. This is especially vital for silicon-containing anodes, where materials like SiOx, Si/C, or Si are employed to enhance storage capacity. Evolving binder chemistries and innovative structural additives, such as Anteo X, aim to minimise inactive materials, pushing silicon anodes forward with significant cycle improvements.

2:05 Advanced Imaging: Possibilities for Si-Based Li-ion Batteries & Beyond

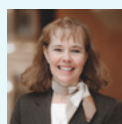
Roland Brunner, PhD, Group Leader & Deputy Head, Microelectronics, Materials Center, Leoben Research GmbH

Understanding the structure as well as the underlying degradation mechanism of batteries, is critical for improving performance and longevity. This work leverages advanced AI-powered imaging techniques to reveal structural and chemical information as well as their modification upon cycling. The presented results allow to enhance battery design and stability for Si-based Li-ion batteries and beyond.

2:35 Session Break

CLOSING PLENARY KEYNOTE

2:45 CLOSING PLENARY PANEL DISCUSSION: Charging Forward: Batteries at the Center of a Shifting World



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

As geopolitical shifts and an evolving policy landscape redraw the battery supply chain, EVs, BESS, and AIDC have emerged as critical pillars of global energy security. Dr. Christina

Lampe-Önnerud, Founder and CEO of Cadenza Innovation, opens AABC with a candid look at where growth is accelerating across materials, components, battery systems, and applications—and why this industry must now decide, together, how it builds the next era of global energy.

3:45 Close of Conference

Present a Poster SAVE \$50!

AABC encourages attendees to gain further exposure by presenting their work in the poster sessions. To secure an onsite poster board, your full submission must be received, and your registration paid in full by November 6, 2026.

Register and indicate that you would like to present a poster. Once your registration has been fully processed, we will send an email with a unique link and instructions for submitting your abstract and other materials. Please see [website](#) for more information.

Reasons you should present your research poster at this conference:

- Your research will be seen by leaders from top commercial, academic and government institutes
- Discuss your research and collaborate with interested attendees and speakers
- Your poster presentation will be published in our conference materials
- Receive a \$50 discount off your Commercial or Academic/Government registration



xEV Battery Technology, Application, and Market

Navigating the Challenges and the Opportunities of xEVs Globally

WEDNESDAY, DECEMBER 9

xEV MARKET EXPANSION

1:40 pm Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

1:45 Chairperson's Remarks

Kevin Konecky, Vice President, Battery Systems Engineering, Spiro



1:50 FEATURED PRESENTATION: Ford's Universal Electric Vehicle Battery Pack

Anil Paryani, Executive Engineering Director, Advanced EV Program, Ford Motor Company

The EV industry is entering a phase where battery systems must deliver higher usable energy, greater volumetric efficiency, faster charging, and dramatically lower system cost to compete with gas platforms. This will require a fundamental rethinking of high-voltage architectures. Ford will discuss its vertically integrated UEV battery pack, engineered from the cell level upward to electrical systems to minimize system complexity and improve battery utilization.

2:20 Delivering EV Range and Value through Innovation

Andy Oury, Battery Engineer and Business Planning Manager, General Motors
General Motors is building an electrification powerhouse, having launched a dozen EVs into the market, ranging from the Equinox EV to the Cadillac Escalade IQ. Mr. Oury will provide an update on GM's battery strategy, focusing on engineering the right battery for the right vehicle—aligning performance, cost, and range with customer needs.

2:50 Virtual Battery Engineers: Expanding Engineering Capacity and Accelerating xEV Development

Tal Sholklafter, CEO and Co-Founder, VoltaIQ

Automakers are under pressure to compress battery program timelines and improve quality, while meeting ambitious AI objectives and flat headcount. Virtual Battery Engineers, AI agents trained around real battery engineering roles, help close that gap.

Designed for process, quality, and test engineering, VBEs automate routine work, surface issues earlier, and extend scarce technical expertise across the organization. This talk presents real customer case studies, measurable ROI, and examples of analyses reduced from weeks to hours by the same team.

VOLTAIQ

3:20 Refreshment Break in the Exhibit Hall with Poster Viewing

4:00 Solid-State Batteries: Progress in Solid Electrolytes and Needs

Rana Mohtadi, PhD, Senior Principal Scientist, Materials Research, Toyota Research Institute of North America

Solid-state electrolyte SSE materials hold the key to enabling highly efficient solid-state battery technologies. Thus, the demonstration of SSEs capable of meeting the performance metrics demanded is of paramount importance. Herein, we will provide an update related to progress being made in the area of SSE material development.

4:30 Functional Safety of HV Battery Packs in Software-Defined Vehicles: From ISO 26262 Compliance to Fail-Operational BMS Architectures

Kishore Kumar Sukumar, Systems Architect, Hardware Functional Safety Architecture, Rivian & Volkswagen Group Technologies LLC

As software-defined vehicles (SDVs) centralize compute and decouple software from hardware, the functional safety of high-voltage battery packs faces new challenges in fault propagation, OTA-driven recalibration, and zonal E/E integration. This presentation examines how ISO 26262 ASIL-D goals can be achieved through fail-operational BMS architectures, deterministic in-vehicle networking, and cybersecurity-aware design, and proposes a practical reference framework for OEMs developing next-generation SDV battery systems.

5:00 Next-Generation All-Solid-State Batteries: A Material-First Approach

Albert Xiao, PhD, Senior Researcher, Nissan Motor Co. Ltd.

Nissan's first All-Solid-State Battery (ASSB) electric vehicles are slated for production in 2028. ASSB technology has enabled state-of-the-art advances in vehicle range, fast charging, and safety. At this stage we must critically assess the problems that remain to be solved and how we can further improve the performance and scalability of ASSBs. At Nissan Silicon Valley, we are pioneering a materials-informatics-led approach to develop the next generation of ASSBs.

5:20 Close of Day

THURSDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

xEV MARKET EXPANSION (CONT.)

8:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:55 Chairperson's Remarks

Tanvir Tanim, Battery R&D Engineer and Group Lead, Energy Storage Technology Group, Idaho National Laboratory

9:00 USABC Battery Development Program Overview

Matt Denlinger, Battery Research Engineer, Energy Storage Research, Ford Motor Company

The United States Advanced Battery Consortium LLC (USABC), a subsidiary of USCAR, is a collaborative research organization comprised of technical personnel from Ford, General Motors, and Stellantis. USABC has been pursuing advanced energy-storage technologies for electrified vehicles for over 30 years. This talk will highlight recent updates to USABC's long-term battery development targets and provide an overview of expected upcoming funding opportunities for US-based battery suppliers.

9:30 Solid-State Batteries Unplugged: Understanding the Future Battery Cell Cost and Tackling Today's Challenges

Varnika Agarwal, Senior Research Analyst, Benchmark Mineral Intelligence

The battery market saw a deployment of around 2.0TWh in 2026. Battery evolution is occurring in many different directions, with each avenue viewed as "the next big thing." Solid-state batteries have gained interest for over a decade now. This session will give a broad overview of the market dynamics, costs, and how we expect the market to evolve in terms of next-generation battery technologies.

9:50 The Next Decade of Battery Demand Across Sectors

Evelina Stoikou, Head of Battery Technology and Supply Chain Research, BloombergNEF

Battery demand is expanding across multiple sectors, each with distinct growth trajectories and technical requirements. From passenger EVs to grid-scale storage and new industrial loads, the market is becoming more segmented and complex. This session quantifies where demand is growing fastest and how the mix is changing over time.

INNOVATIONS IN BATTERIES FOR xEVs

10:10 Accelerating Lithium-ion Battery Innovation via High-Throughput Experimentation and AI-Powered Predictive Modeling

Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

Lithium-ion batteries are complex systems, and their development still depends heavily on physical experimentation. Wildcat's high-throughput platform accelerates research by generating reproducible, cross-comparable data from both successful and unsuccessful tests. By augmenting this platform with AI, we aim to improve research efficiency and predictive modeling. This presentation highlights Wildcat's approach, data system, and lessons learned from deploying machine-learning models.

10:30 Coffee and Bagel Break in the Exhibit Hall. Last Chance for Poster Viewing



xEV

December 9-10, 2026 | San Diego, CA

xEV Battery Technology, Application, and Market

Navigating the Challenges and the Opportunities of xEVs Globally

11:00 GEN4 Solid-State Lithium-Metal Batteries: Performance and Safety Qualifications

Sarah Degras, Polymer Designer, R&D, Blue Solutions Canada, Inc.

Lithium-metal anodes have become a ubiquitous next step in battery development, offering the only near-term pathway beyond 400 Wh/kg. Blue Solutions, pioneer industrial-scale solid-state battery manufacturer since 2011, presents its GEN4 platform targeting 450 Wh/kg with NMC, with A-sample maturity now achieved and with performances validated by third-party testing. The safety roadmap addresses both intrinsic cell safety and inter-cell propagation, against SAE J2464 protocols and achieving GB38031-2025 compliance.

11:30 From Cell to System: Emerging Battery-Pack Trends and Opportunities in Next-Generation xEV Battery Architecture

Kevin Konecky, Vice President, Battery Systems Engineering, Spiro

Can 200 Wh/kg at the pack level be exceeded? As xEV battery systems grow in complexity, competitive differentiation has shifted from cell chemistry to system-level integration. Mechanical structure, thermal management, and BMS greatly impact a battery pack's performance, safety, and lifecycle promises. This presentation examines current performance benchmarks at the pack level and then evaluates each subsystem, looking at the most promising innovation opportunities in next-generation battery systems.

12:00 pm From Chemistry to Commerce: Next-Generation Battery Systems for Transit and Commercial-Vehicle Applications

John Warner, DM, Chief Customer Officer, American Battery Solutions

As the transit and commercial-vehicle markets accelerate toward electrification, American Battery Solutions (ABS) is launching its next-generation high-voltage battery platform with expanded chemistry options—including LFP alongside proven NMC solutions. This session examines the advanced technologies integrated into ABS's new platform, the engineering priorities driving next-gen design, and the commercial realities of bringing new battery systems to market in demanding heavy-duty applications.

12:30 Enjoy Lunch on Your Own

HEAVY-DUTY APPLICATIONS

1:30 Chairperson's Remarks

Dee Strand, PhD, CSO, R&D, Wildcat Discovery Technologies, Inc.

1:35 Commercial-Vehicle Electrification: Why Deployment Is Harder and More Commercially Attractive than Expected

Kevin Beaty, Principal, YUNEV LLC

Commercial vehicle electrification is proving more complex than early forecasts anticipated. Long development timelines, fragmented vocations and weight classes, infrastructure dependencies, and competing vehicle architectures create significant commercialization challenges across the battery ecosystem. Yet these same dynamics may also create stronger supplier relationships, higher switching costs, and long-term market defensibility. This presentation examines the structural realities shaping MHD electrification and what stakeholders must understand to navigate development, deployment, and scale.

2:05 Battery Degradation Analysis for Class 8 Heavy-Duty Electric-Truck Applications

Tanvir Tanim, Battery R&D Engineer and Group Lead, Energy Storage Technology Group, Idaho National Laboratory

Electrification of Class 8 heavy-duty trucks could improve energy efficiency and lower freight costs, yet battery performance under realistic operating conditions remains poorly understood. This study evaluates commercial lithium-ion cells under regional and long-haul duty cycles to examine aging behavior. Results highlight the effects of operational parameters on battery life and performance, providing insights into fleet optimization, total cost of ownership estimation, and informed decision-making for heavy-duty truck electrification.

2:35 Session Break



Global Battery Manufacturing Production

Maximizing Production Efficiency & Quality to Deliver on Shifting Global Demand

WEDNESDAY, DECEMBER 9

ADVANCES IN R&D FOR PRODUCTION

1:40 pm Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

1:45 Chairperson's Remarks

Cameron Chase, Director, Business Development, Systems Engineering, NXP Semiconductors

1:50 Development of *in situ* Status Diagnostic Indicator and Abnormal Detection Technology for Electric Vehicle Batteries Using Swelling Sensor Signals

Jaeyoung Lim, PhD, Senior Research Engineer, CV Virtual Development Team, Hyundai Motor Company

This work presents an *in situ* diagnosis system of large capacity lithium-ion battery based on a sponge-type battery swelling sensor, which is appropriate for battery module-level integration. In addition, developed swelling sensor was applied for battery cell and module level monitoring. The sensor could monitor the battery swelling under changing state-of-charge (SOC) with various current rates (C-rates) from 0.1C to 2C.

2:20 High-Throughput CT Scanning for Statistically Valid Lot Qualification of Lithium-ion Battery Cells

Peter Attia, PhD, Co-Founder & CTO, Glimpse

This presentation details a collaboration between NASA and Glimpse to CT-scan 200 cells from a 60,000-cell flight lot, revealing electrode overhang violations and metallic particle contamination that a conventional 14-cell sample would almost certainly have missed. Statistical analysis shows that 200+ scans are required for $\geq 90\%$ confidence at 1% defect rates—a threshold now achievable with hig.

2:50 Sponsored Presentation (Opportunity Available)

3:20 Refreshment Break in the Exhibit Hall with Poster Viewing

4:00 Mass Production Processes for Solid-Liquid Hybrid and All Solid-State Batteries in China: From the "Laboratory" to the "Production Line"

Mark Lu, PhD, Senior Industrial Analyst, Industrial Economics & Knowledge Center, Industrial Technology Research Institute

Chinese solid-liquid hybrid battery production exceeded 30 GWh in 2025, and it has entered multiple application markets and EV batteries. Dry coating process, direct molding, and pressurize during production have been used and are being further considered as technology options for future all-solid-state battery production. This presentation will give and introduce the latest status of relevant process technologies in China in 2026.

4:30 PANEL DISCUSSION: Dry Battery Electrode (DBE) Manufacturing Is Inevitable: Adopt or Fall Behind

Moderator: Christopher Mohajer, Director, AM Batteries

This panel will explore the latest advances, anticipated future, and overriding advantages of DBE that make industry-wide adoption an inevitability. Drawing on expertise from across the international DBE innovation ecosystem, we will convene leaders from start-ups, corporates, and research institutions to discuss such topics as the DBE adoption curve, key players (and what is holding others back), DBE's role in future battery chemistries, and more.

Panelists:

Hieu Duong, PhD, Chief Manufacturing Officer, AM Batteries

5:20 Close of Day

THURSDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

ADVANCES IN R&D FOR PRODUCTION

8:50 Organizer's Remarks

Craig Wohlers, General Manager, Cambridge EnerTech

8:55 Chairperson's Remarks

Rory McNulty, Product & Market Strategy Lead, Anaphite

9:00 Dry Coating of High-Performance Lithium-ion Cathodes

Alexander Hewitt, Co-Founder & COO, Anaphite

Conventional slurry mixing and wet coating rely on energy-intensive drying, driving significant capital costs, energy consumption, and carbon emissions in battery manufacturing. This talk presents Anaphite's Dry Coating Precursor (DCP) process, with case studies demonstrating how engineered composite electrode materials enable scalable dry coating while maintaining high electrochemical performance. The approach provides a practical pathway for cell manufacturers to adopt dry coating at industrial scale.

9:30 Achieving Extreme Longevity in Li-ion Cells: A Case Study

James Kaschmitter, CEO, SpectraPower LLC

Li-ion cells have achieved a remarkable record for calendar life as confirmed by testing of cylindrical, prismatic and pouch cells manufactured by PolyStar Corporation in Livermore, CA in 1997 through 2001 and recently tested. This paper reports the test results on these cells, including performance, cycling and Electrochemical Impedance Spectroscopy results.

10:00 How to Charge Faster and Safer with an eisBMS Chipset

Cameron Chase, Director, Business Development, Systems Engineering, NXP Semiconductors

A battery management system (BMS) chipset with built-in Electrochemical Impedance Spectroscopy (EIS) may bring lab-grade diagnostics into vehicles. These features may be used to support fast charging current setting and temperature monitoring in a faster, safer, and more accurate control loop. This presentation will explore the reality of implementation.

10:30 Coffee and Bagel Break in the Exhibit Hall. Last Chance for Poster Viewing

SCALING GLOBAL BATTERY PRODUCTION

11:00 What Breaks First When Battery Companies Scale?

Katharina Gerber, Global Battery Industry Developer, Siemens

As battery companies scale, chemistry rarely breaks first, visibility does. Small teams share context naturally, but growth introduces silos just as timelines compress and expert capacity is stretched thin. Some companies compensate with organizational mass while majority cannot. This talk explores what breaks when scale outpaces visibility, and how optimized feedback loops, lifecycle traceability, digital twins, and physics-aware AI help limited experts maintain context, alignment, and decision quality under pressure.

11:30 Tailored Electrode Architectures for Next-Generation Batteries: Performance Enhancement and Scalable Manufacturing

Wilhelm Pfleging, PhD, Head of Group Laser Materials Processing/Lithium-ion Batteries, Institute for Applied Materials (IAM-AWP), Karlsruhe Institute of Technology (KIT)

Structuring of thick-film electrodes for pouch and cylindrical cells has been advanced through high-power laser processing, enabling parallel processing and throughput upscaling. Structural patterns for cathodes and anodes are optimized to enhance fast-charging performance and mitigate lithium plating. 3D elemental mapping of entire electrodes supports electrode architecture optimization. Laser processes for electrode development targeting solid-state battery applications represent a new research activity with upscaling as a key objective.

11:50 Scaling Battery-Cell Manufacturing from Lab to Fab

Miha Podbrzenik, Technology Manager, Fraunhofer Research Institution for Battery Cell Production FFB

Scaling battery cell manufacturing from lab-scale processes to pilot and industrial production is often limited by process robustness, equipment transfer, yield stability, quality control, and data availability. This presentation discusses the key pain points across the process steps and highlighting where the largest optimization potential lies. It outlines opportunities to improve manufacturability, reduce scale-up risk, and accelerate industrial manufacturing readiness.

Global Battery Manufacturing Production

Maximizing Production Efficiency & Quality to Deliver on Shifting Global Demand

WORKFORCE RECRUITMENT & DEVELOPMENT

12:10 pm Battery Talent Census, Trends, and Insights

Matt Anders, Founder & Lead Recruiter, VoltForce

Taking a deep dive into the Battery Talent Census data, battery trends looking towards 2027, and valuable insights for those looking to advance their careers or hire more efficiently.

12:30 Enjoy Lunch on Your Own

GLOBAL BATTERY MANUFACTURING: STRATEGY AND OPPORTUNITY

1:30 Chairperson's Remarks

Matt Anders, Founder & Lead Recruiter, VoltForce

1:35 Opportunities and Challenges for Closed Loop within North America

Aki Fujita, Principal, Arthur D. Little

This presentation will discuss a three-dimensional approach for battery-materials reclamation: deactivation, direct recycling, and design. The service of lithium-ion batteries and recycling of their materials is at the forefront of the reestablishment of the global supply chain of critical-materials refining and manufacturing. The industrialization of this requires innovative processes and design to realize cost and safety demands in the next generation of lithium-ion manufacturing.

2:05 Battery Metals: Is the Stage Set for the Next Tight Cycle?

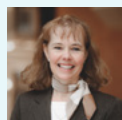
Frank Nikolic, Vice President, Base & Battery Metals, CRU Group

Battery metals prices are rising as robust demand meets mounting risks to supply. Geopolitical conflict, trade realignment, and project uncertainties are reshaping sourcing and threatening the pace of supply availability. This presentation examines whether the market is entering its next tight cycle, what current price signals reveal, and which supply-side vulnerabilities could define the outlook for battery metals.

2:35 Session Break

CLOSING PLENARY KEYNOTE

2:45 CLOSING PLENARY PANEL DISCUSSION: Charging Forward: Batteries at the Center of a Shifting World



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

As geopolitical shifts and an evolving policy landscape redraw the battery supply chain, EVs, BESS, and AIDC have emerged as critical pillars of global energy security. Dr. Christina

Lampe-Önnerud, Founder and CEO of Cadenza Innovation, opens AABC with a candid look at where growth is accelerating across materials, components, battery systems, and applications—and why this industry must now decide, together, how it builds the next era of global energy.

3:45 Close of Conference



WEDNESDAY, DECEMBER 9

BATTERY DEVELOPMENT

1:40 pm Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

1:45 Chairperson's Remarks

Tina Shoa, PhD, Professor Sustainable Energy Engineering, Faculty of Applied Sciences, Simon Fraser University

1:50 Reevaluating Cell-Level Safety Standards for System-Level Risk Reduction

Susheel Teja Gogineni, Tech Staff, Consumer Hardware, OpenAI

2:20 How Machine Learning Prediction Continues to Accelerate Battery Development

Venkat Viswanathan, Associate Professor, University of Michigan and Co-Founder, Aionics

We will discuss how new computational approaches enabled by high-performance computing and machine learning algorithms are accelerating the traditional materials design and commercialization process for battery materials.

2:50 Sponsored Presentation (Opportunity Available)

3:20 Refreshment Break in the Exhibit Hall with Poster Viewing

MODELING AND PROGNOSTICS

3:50 AI Battery Prognostics

Susan Babinec, Program Lead, Stationary Storage, Argonne Collaborative Center for Energy Storage Science (ACCESS), Argonne National Laboratory

In this work, we describe the evolution of AI/ML tools in Li-ion life prediction and show how they naturally culminate in the need for a unified foundation model (FM) that supports diverse applications across the ecosystem. We present our first steps on the path towards a true FM and offer a definitive demonstration that our proto-FM outperforms the present paradigm of the single dataset model.

4:20 Model-Driven Digital Twin Diagnostics for High-Performance Battery Management Systems

Tina Shoa, PhD, Professor Sustainable Energy Engineering, Faculty of Applied Sciences, Simon Fraser University

This talk presents AI-enabled approaches for battery digital twins in high-performance battery management systems. An AI-assisted core temperature estimation framework improves SoH assessment through inference models and compensation. A physics-guided neural network predicts long-term degradation from early-cycle data, enabling accurate lifetime forecasting. An AI-based fault diagnosis framework detects critical safety issues, including conditions leading to reverse polarity. Together, these technologies enable safer, more reliable, and longer-lasting energy storage systems.

4:50 Early Thermal Runaway Detection in Lithium-ion Batteries Using Acoustics

Wai Cheong Tam, PhD, Mechanical Engineer, Fire Research Division, NIST

Lithium-ion battery thermal runaway poses significant safety risks in electrified systems and energy storage applications. This work presents an acoustic-based early warning framework for detecting thermal runaway using deep learning. The approach identifies early signatures prior to catastrophic failure and enables timely intervention. Results demonstrate reliable early-stage detection performance across varying operating, highlighting the potential of acoustic sensing for future battery safety monitoring and hazard mitigation.

5:20 Close of Day

THURSDAY, DECEMBER 10

8:00 am Registration and Morning Coffee

BATTERY AGING

8:50 Organizer's Remarks

Victoria Mosolgo, Senior Conference Director, Cambridge EnerTech

8:55 Chairperson's Remarks

Tedjani Mesbahi, PhD, Full Professor, ICube-CNRS Laboratory, INSA Strasbourg, France

9:00 From Black-Box Predictions to Passport-Ready Insights: Explainable AI for Battery Lifecycle Management

Tedjani Mesbahi, PhD, Full Professor, ICube-CNRS Laboratory, INSA Strasbourg, France

While deep learning achieves state-of-the-art battery state-of-health estimation, the emerging EU Digital Battery Passport introduces a critical constraint: model auditability. This study proposes a counterfactual explainability framework that maps black-box inference outputs onto interpretable, condition-level degradation drivers. Compliant with DBP transparency requirements, the approach provides actionable decision support across warranty assessment, second-life qualification, and end-of-life recycling workflows.

9:30 Battery Aging Mechanisms from Accelerated Tests to Real-Life EV Operation

Jun Xu, PhD, Associate Professor Mechanical Engineering, Spencer Lab, University of Delaware

Understanding lithium-ion battery aging under real-life driving conditions is essential for EV development. Using WLTC-based cycling, this work reveals that 100% and 45% DoDs accelerate cathode degradation and interfacial degradation, respectively, while 75% DoD balances both and achieves the longest cycle life (>2200 EFCs). The results provide insights for optimizing BMS cycling protocols and extending battery lifetime.

10:00 AI-Driven Anomaly Detection in Battery-Cell Manufacturing Using Scanning Acoustic Microscopy

Moritz Kroll, Junior Research Group Leader, University of Freiburg and Fraunhofer ISE

Manufacturing anomalies in battery cells can compromise safety and longevity of energy storage systems. Ultrasound-based quality inspection enables rapid, cost-effective, and reliable in-line inspection of battery cells. AI-based feature extraction from ultrasonic time-series data, combined with clustering algorithms, allows for automated anomaly identification, localization, and classification, reducing production waste and enhancing battery safety.

10:30 Coffee and Bagel Break in the Exhibit Hall. Last Chance for Poster Viewing.

APPLICATIONS

11:00 Diagnostics Using Pulse Tests and Machine Learning

Paul J. Gasper, PhD, Staff Scientist, Energy Conversion & Systems Center, National Renewable Energy Laboratory

Rapid diagnostic tests use short (10s-100s) alternating- or direct-current signals to probe a battery, from which battery capacity, state-of-charge, or safety may be estimated. Many methods have been proposed, but a holistic evaluation of these techniques has not yet been presented. Here, we will present a study on the effectiveness of using rapid diagnostics for state-of-charge and temperature agnostic battery state estimation, using both previously published and newly collected data.

11:30 Battery Intelligence in the Context of Electric Aviation

Shashank Sripad, PhD, Co-Founder & CTO, And Battery Aero

This presentation discusses leveraging machine learning and robotic experimentation to accelerate innovation in battery materials. It explores how these advanced techniques streamline material discovery, optimize properties, and expedite the development of next-generation battery technologies.

12:00 pm Agent for Battery Accelerated Design

Wenming Zhao, PhD, Senior Project Team Leader, Engineering Product Development, Caterpillar Inc.

Battery packaging design has to consider space-claim limitation for large structures like energy storage or machines other than automobile industry. AI-enabled processes would greatly save design time and also take into account the structure integration assessment and meet thermal and electrical requirements.

12:30 Enjoy Lunch on Your Own

PERSPECTIVES BATTERY CHEMISTRIES

1:30 Chairperson's Remarks

Moritz Kroll, Junior Research Group Leader, University of Freiburg and Fraunhofer ISE

1:35 Multimodal AI and Machine Learning Systems for Accelerated SSB Development

Xiaoyu Wen, Principal Member of Technical Staff, QuantumScape

Battery development and manufacturing produce heterogeneous data, including cycling records, process context, failure-analysis observations, and inspection images. This talk presents a flexible framework for operationalizing multimodal and vision-language AI in energy storage workflows, spanning cycle-life prediction, root-cause analysis, defect segmentation, object detection, and classification. It also discusses production ML systems, including continuous feedback, reusable templates, model serving, and feedback loops, to enable robust, production-grade AI across the battery lifecycle.

2:05 Pulse Injection-Aided Machine Learning for Battery Pack State Estimation

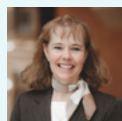
Matthias Preindl, PhD, Assistant Professor, Electrical Engineering, Columbia University

Lithium-ion (LIB) battery degradation is often characterized at three distinct levels: mechanisms, modes, and metrics. ML can provide a unique multi-level perspective on characterizing LIB degradation and it can improve accuracy especially when combined with perturbation techniques. This pulse-injection aided machine learning (PIAML) technique can be used for battery diagnostic and prognostics with high fidelity. LIB management systems can leverage this estimation framework to extend lifetime and reduce costs.

2:35 Session Break

CLOSING PLENARY KEYNOTE

2:45 CLOSING PLENARY PANEL DISCUSSION: Charging Forward: Batteries at the Center of a Shifting World



Moderator: Christina Lampe-Önnerud, PhD, Founder and CEO, Cadenza Innovation

As geopolitical shifts and an evolving policy landscape redraw the battery supply chain, EVs, BESS, and AIDC have emerged as critical pillars of global energy security. Dr. Christina Lampe-Önnerud, Founder and CEO of Cadenza Innovation, opens AABC with a candid look at where growth is accelerating across materials, components, battery systems, and applications—and why this industry must now decide, together, how it builds the next era of global energy.

3:45 Close of Conference



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