



Charging Ahead

NAATBATT 2023

14TH ANNUAL THE WIGWAM RESORT • LITCHFIELD PARK, ARIZONA
MEETING & CONFERENCE

FEBRUARY 20-23

EnerSys®

Power/Full Solutions

POWERING THE FUTURE – EVERYWHERE FOR EVERYONE

From all of us at the EnerSys® family of companies, welcome back to NAATBatt! It's great to see you in person to talk about how we can put our world-class energy system solutions to work for you.

Purcell
SYSTEMS
an EnerSys company

alpha
an EnerSys company

NorthStar
an EnerSys company

NexSys

ODYSSEY
BATTERY

OutBack
POWER

ABSL

VISIT US AT NAATBatt BOOTH #8

www.enersys.com

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NAATBATT 2023



GENERAL PROGRAM AGENDA

MONDAY, FEBRUARY 20

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
12:00 pm	Golf Lunch	PRO SHOP LAWN	Sponsored By QAD
1:00 pm	Golf	RED COURSE	Sponsored By QAD
2:30 pm	Tennis	TENNIS CENTER	
7:00-9:30 pm	Tournament Dinner	TRELLIS GARDEN	Sponsored By QAD




TUESDAY, FEBRUARY 21

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
7:30 am-5:00 pm	Registration		
8:00-9:00 am	Education Committee	SACHEM BALLROOM	
8:00-9:00 am	Zinc Battery Committee	OZANNE ROOM	
8:00-9:00 am	Military Battery Committee	SAHUARO	
9:00-10:00 am	Policy & Regulatory/ Battery Safety Committees	SAHUARO	
9:00-10:00 am	Onshoring Battery Technology Committee	OZANNE ROOM	
9:00-10:00 am	Lithium Battery Recycling Committee	SACHEM BALLROOM	
10:00-11:00 am	Manufacturing in North America Committee	SACHEM BALLROOM	
10:00-11:00 am	Second Life Battery Committee	SAHUARO	
11:00-Noon	Energy Materials Committee	SACHEM	



Leading traceability solution for the battery supply chain

The most proven and trusted technology solution
for supply chain transparency.

-  Enables proof of responsible and sustainable resourcing
-  Prevent and mitigate risks and improve business performance
-  Gain full visibility of supply chain with actionable insights

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TUESDAY, FEBRUARY 21 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
11:00-Noon	Tracking & Tracing Committee	SAHUARO		
Noon-1:00 pm	Lunch (on your own)			
12:30-1:00 pm	Meet & Greet	WIGWAM FOYER	Sponsored By INTERCO	
1:00 pm	Opening of NAATBatt 2022	WIGWAM BALLROOM		
1:00-1:10 pm	Welcome Remarks NAATBatt President & Executive Director		Renata Arsenault & James Greenberger FORD MOTOR COMPANY	
1:10-1:30 pm	Report of the Chief Science Officer of NAATBatt		Stanley Whittingham SUNY AT BINGHAMTON	
1:30-1:50 pm	Report of the Chief Technology Officer of NAATBatt		Bob Galyen GALYEN ENERGY	
1:50-2:10 pm	Market Report: <i>EV Markets in North America</i>		Evelina Stoikou BLOOMBERGNEF	
2:10-2:30 pm	Market Report: <i>ESS Markets in North America</i>		Chris Seiple WOOD MACKENZIE POWER & RENEWABLES	
2:30-2:50 pm	Market Report: <i>Lithium Battery Cell & Components Mfg. in N America</i>		Sam Jaffe E-SOURCE	
2:50-3:30 pm	Opening of Exhibit Showcase and Networking Break	MOHAVE BALLROOM	Sponsored By AMERICAN BATTERY SOLUTIONS	
3:30-3:50 pm	Market Report: <i>Energy Materials Markets Outlook</i>	WIGWAM BALLROOM	Andrew Miller BENCHMARK MINERALS INTELLIGENCE	
3:50-4:10 pm	Making Sense of the Inflation Reduction Act	MOHAVE BALLROOM	Nathan Niese BOSTON CONSULTING GROUP	
4:20-5:50 pm	Member Update Presentations: (Upstream Companies)	WIGWAM BALLROOM	Airgas Circulor Lithium Americas American Battery Solutions Honeywell Stryten Energy A&D Technology Alabama Power American Electric Power Anovion	Bechtel NECA-IBEW CA & NV LMCC Cabot Celgard Daikin America Digatron Power Electronics Flexo Concepts GFL Americas Forge Nano Piedmont Lithium

TO LEARN MORE ABOUT YOUR 2023 SPEAKERS [CLICK HERE](#)



When you need more than just gases

Gases play a critical role in your process and all throughout the battery ecosystem—you need the right gas with reliable and uninterrupted supply to meet increasing BEV market needs—from start up and certification into production and through to expansion.

A typical two-year transition from certification into full production demands access to multiple supply mode options to accommodate increasing gas consumption. Airgas, an Air Liquide company, can help with a variety of supply options starting with bulk and increasing to on-site gas generation and pipeline supply as needed.

Our experts, backed by a global R&D network, are ready to help you optimize gas use and battery performance, simplify your supply chain, and improve your TCO.

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and learn how we
can help you stay
competitive.**



Ask us about low
carbon footprint
solutions for bulk
and on-site gas production!



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right Airgas supply mode for
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TUESDAY, FEBRUARY 21 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
4:20-5:50 pm	Member Update Presentations: (Downstream Companies)	SACHEM BALLROOM	EnerSys QAD Renewance SAE International Amphenol Aqua Metals Clarios DuPont Hitachi America Inventus Power Kurl Technology	Siemens Ecobat Huntsman Æsir Technologies Alliant Insurance Services Automotive Recyclers Association Blue Whale Materials Call2Recycle
6:00-7:00 pm	Opening Reception	MOHAVE BALLROOM	Sponsored By ENERSYS	
7:00-9:30 pm	Opening Dinner	FRONT LAWN		
7:15-9:30 pm	Board of Directors Meeting and Dinner	OZANNE ROOM	Sponsored By SAE	

WEDNESDAY, FEBRUARY 22

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
7:30-8:15 am	Continental Breakfast	MOHAVE BALLROOM		
7:30-8:15 am	Table #1: <i>Enterprise Quality Mgmt- Battery and Cell Manufacturing</i>	SAHUARO	Sponsored By HONEYWELL	
7:30-8:15 am	Table #2: <i>Best Practices- Advancing Battery Innovations to Commercial Scale Mfg.</i>	SAHUARO		
7:30-8:15 am	Table #3: <i>Optimizing Materials Generated by Battery Recycling</i>	SAHUARO	Sponsored By SCHENCK PROCESS	
7:30-8:15 am	Table #4: <i>Site Selection Challenges for Battery Manufacturers in North America</i>	SAHUARO	Sponsored By NEWMARK	

LithiumAmericas

Enabling a domestic electric vehicle supply chain with Thacker Pass, the leading near-term source of lithium in the US

Thacker Pass is the largest-known lithium resource in the US with an approved Record of Decision, state permits for construction start and Community Benefits Agreement with the Fort McDermitt Paiute and Shoshone Tribe, the closest Native American community.

Targeting Phase 1 production capacity of 40,000 tpa of lithium carbonate. Phase 2 expansion to increase total targeted capacity to 80,000 tpa.

Advancing Caucharí-Olaroz towards first production

Caucharí-Olaroz in Jujuy, Argentina is the largest new lithium carbonate brine operation under construction in over 20 years.

Low-cost production of 40,000 tpa lithium carbonate over 40 year mine life. Stage 2 expansion planning underway for at least 20,000 tpa of capacity.

Consolidating the highly prospective Pastos Grandes basin in Salta, Argentina

Regional growth in northern Argentina with the Pastos Grandes project and recent acquisition of Arena Minerals' Sal de la Puna project.

TSX and NYSE: LAC
www.lithiumamericas.com

For forward-looking statements, see our Disclaimer and Disclosure webpage at www.lithiumamericas.com/disclaimer-disclosure

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WEDNESDAY, FEBRUARY 22 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
8:20-8:25 am	Welcome by the Chairman of NAATBatt	WIGWAM BALLROOM	Jeff Yambrick GREAT WALL MOTOR
8:25-8:35 am	Reports by Breakfast Discussion Leaders		
8:35-8:45 am	NAATBatt Annual Members Meeting		
8:45-9:35 am	The Upstream Lithium Ion Supply Chain Challenge in North America		<p>Sponsored By SCHENCK PROCESS</p> <p>Abby Wulf SECURING OUR ENERGY FUTURE (SAFE)</p> <p>Austin Devaney PIEDMONT LITHIUM</p> <p>Linda Gaines ARGONNE NATIONAL LABORATORY</p>
9:35 10:25 am	Roundtable: Winners and Losers in the Battery Business Five Years from Now		<p>Dirk Spiers Spiers NEW TECHNOLOGIES</p> <p>Kurt Kelty SILA NANOTECHNOLOGIES</p> <p>Renata Arsenault FORD MOTOR COMPANY</p> <p>Mark Caffarey UMICORE</p> <p>Julie Blundren NEW ENERGY NEXUS</p> <p>Denise Gray LG ENERGY SOLUTION MICHIGAN</p>
10:25-11:00 am	Networking Break	MOHAVE BALLROOM	<p>Sponsored By BUSCH VACUUM SOLUTIONS</p>

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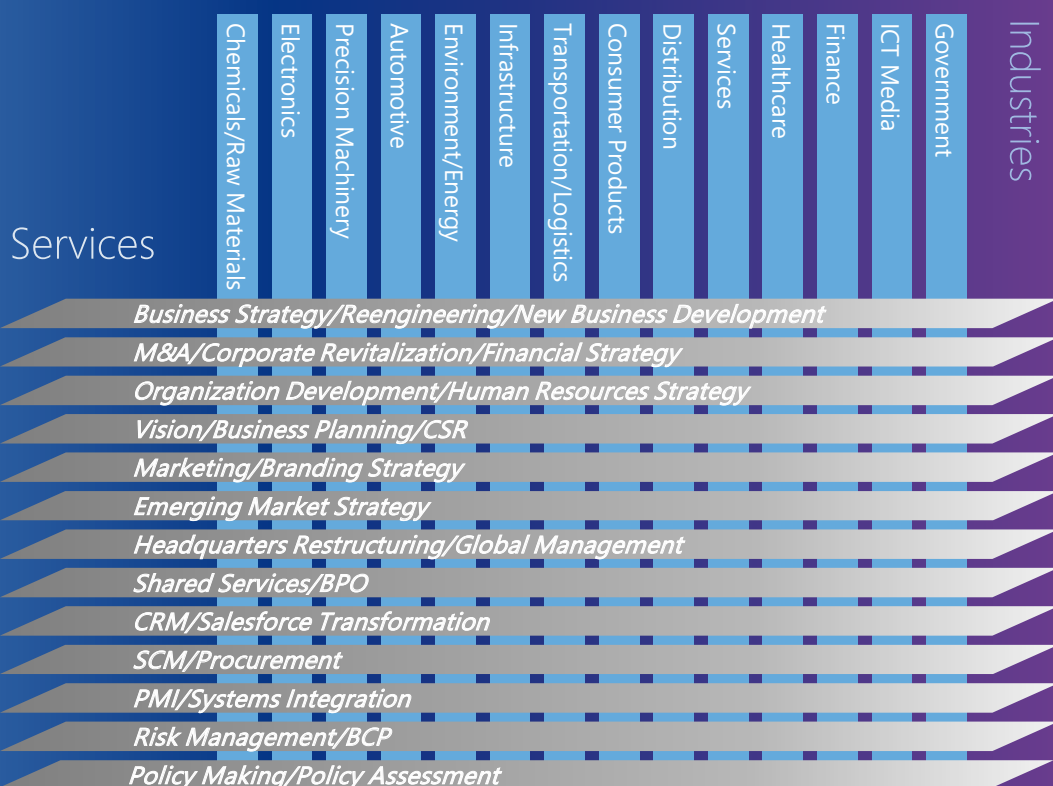


Operation Strategy

Operation strategy including business and digital transformation (Lean Six Sigma, digitization in all stages, cost optimization, etc.)

NRI's experience covers the entire spectrum of industries including policy support for government agencies.

NRI's experience covers the entire spectrum of industries including policy support for government agencies.



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WEDNESDAY, FEBRUARY 22 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
11:10-12:35 pm	Member Update Presentations: (Upstream Companies)	WIGWAM BALLROOM	Precision Roll Grinders Siemens Aquatech International Birla Carbon BrightVolt Huntsman Milwaukee Tool Sion Power South 8 Technologies Everledger	24M Technologies 6K Energy Concentric Addionics Alkegen American Battery Factory American Battery Technology Arkema Armor Battery Films Ascend Elements
11:10-12:35 pm	Member Update Presentations: (Downstream Companies)	SACHEM BALLROOM	Car-Part.com EaglePicher Technologies Electrada Electric Applications Customized Energy Solutions Glencore Nickel Green Li-ion IT Asset Partners	Li Industries Li-Cycle Liminal Insights Lithion Recycling Nuvation Energy OPTEL PACT ThermoShield Parker LORD Photon Automation Snell & Wilmer Abel + Imray
12:35-1:55 pm	Lunch	FRONT LAWN	Sponsored By LITHIUM AMERICAS	
1:55-2:45 pm	Breaking Down the Barriers to Commercialization of U.S. Battery Innovation	WIGWAM BALLROOM	Sponsored By FORGE NANO James Trevey (moderator) FORGENANO Sue Babinec ARGONNE NATIONAL LABORATORY Christina Lampe-Onnerud CADENZA INNOVATION Mike Fetchenko SION POWER	

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ELEMENTS

Beyond Battery Recycling

SUSTAINABLE LITHIUM-ION BATTERY MATERIALS

Ascend Elements manufactures advanced battery materials using valuable elements reclaimed from used lithium-ion batteries. Our patented Hydro-to-Cathode™ direct precursor synthesis process transforms today's waste into high-value materials for tomorrow's EV batteries. It's the most efficient and economical way to return used battery materials to the supply chain.

Recycled Battery Metals Sustainable Precursor (pCAM) and Cathode (CAM)

Learn more at ascendelements.com

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WEDNESDAY, FEBRUARY 22 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
2:55-4:15 pm	Member Update Presentations: (Upstream Companies)	WIGWAM BALLROOM	Battery Streak Blue Solutions Canada BST North America COnovate Albemarle Soteria DNV Energy USA - BTCC Dukosi Durr Systems	Enovix Epsilon Advanced Materials Esterlam International Battery Innovation Center Institute Forsee Power Grillo-Werke AG Impossible Metals INOAC USA IP PowerSystems
2:55-4:15 pm	Member Update Presentations: (Downstream Companies)	SACHEM BALLROOM	Posh Princeton NuEnergy RecycLiCo Battery Materials ReElement Technologies Ricardo Strategic Consulting Robertson's Auto Salvage Spiers New Technologies	Umicore USA Veolia ES Technical Solutions Voltaiq 2ndlife Batteries.com Sandia National Laboratories Military Power Sources Committee Botree Cycling Argonne National Laboratory
4:15-4:45 pm	Networking Break	MOHAVE BALLROOM	Sponsored By AMERICAN HONDA MOTOR CO	
4:45-5:35 pm	Addressing Safety Requirements in Lithium Battery Packaging and Logistics	WIGWAM BALLROOM	Sponsored By AMPHENOL Brian Engle AMPHENOL SENSORS Nathan Nye TESLA Bob Clatterbuck U.S. DOT, PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION	

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Our purpose is to make a difference by developing natural resources, improving people's lives now and for generations to come. We are trusted by our owners and partners to realize the potential of their resources.

Our Hermosa Project in southern Arizona is the only advanced battery-grade manganese project in North America.



Learn more at south32.net



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WEDNESDAY, FEBRUARY 22 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
6:00-7:00 pm	Networking Reception	MOHAVE BALLROOM	Sponsored By CIRCULOR
7:45-8:30 pm	NAATBatt Annual Gala Dinner	FRONT LAWN	Sponsored By QAD
8:30-8:50 pm	Keynote Speakers		David Howell U.S. DEPARTMENT OF ENERGY Alex Jacquez NATIONAL ECONOMIC COUNCIL
8:50-9:10 pm	Lifetime Achievement Award Presentations		Eric Darcy NASA

THURSDAY, FEBRUARY 20

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
7:30-8:20 am	Continental Breakfast	MOHAVE BALLROOM	
7:30-8:20 am	Table #1: <i>The State of Solid State Battery Technology</i>	SAHUARO	Sponsored By BLUE SOLUTIONS
7:30-8:20 am	Table #2: <i>Commercializing Next-Gen Batteries</i>	SAHUARO	Sponsored By ENOVIX
7:30-8:20 am	Table #3: <i>Increasing the Operational Safety of Battery Recycling</i>	SAHUARO	Sponsored By LICYCLE
7:30-8:20 am	Table #4: <i>Reshoring the Manufacture of Battery Manufacturing Equipment</i>	SAHUARO	Sponsored By SIEMENS
8:20-8:25 pm	Welcome by President-Elect of NAATBatt	WIGWAM BALLROOM	Joe LoGrasso POLARIS INDUSTRIES
8:25-8:35 pm	Reports by Breakfast Discussion Leaders		
8:35-9:25 pm	Developing Battery Charging and V2G Infrastructure		Margaret O'Riley ELECTRADA Joern Tinnemeyer ENERSYS

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Bulk Material Handling for Lithium Ion Battery Production

- » Pneumatic Conveying
- » Bulk Bag Unloading
- » Dust Collection
- » Pulverizing
- » Calcining
- » Feeding



**More
Information**

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THURSDAY, FEBRUARY 20 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR	
9:35-11:05 pm	Member Update Presentations: (Upstream Companies)	WIGWAM BALLROOM	JAKERTECH LiCAP Technologies Koura (Orbia) KTON LLC Li-Metal LiNova Energy Lyten Machinery Analytics Manz USA Graphenix Development Nano One	Nanoramic Laboratories Netzsch Pumps USA Newmark NSL Analytical Service Ratel Consulting Schenck Process Miracle Automation Engineering South32 Spraying Systems NY-BEST
9:35-11:05 pm	Member Update Presentations: (Downstream Companies)	SACHEM BALLROOM	TA Instruments - Waters TDA Research Ten-Nine Technologies The Coretec Group The Metals Company Titan Advanced Energy Solutions UL Solutions UnitX Westwin Elements EnPower Solvay	Octet Scientific CSA Group Exponent International Zinc Association Nickel Institute National Research Council of Canada CHASM Advanced Materials NREL Binghamton University Regional Growth Partnership
11:05-11:40 pm	Networking Break	MOHAVE BALLROOM	Sponsored By RENEWANCE	

SAE Sustainable Mobility Solutions leads industry with comprehensive battery academy training portfolio

Coming in the first half of 2023

Overview	
Battery Portfolio Curriculum	Over 22 On-Demand courses and 85 learning modules. Over 100 hours of content. Encompasses the entire battery lifecycle including raw materials, active materials, cell manufacturing, battery packs & systems, application & integration, Recycling & 2nd Life.
Audience	The Battery Portfolio was designed for professionals working in energy technology, renewable energy, engineering, business, policy & consultancy.
Availability	The Battery Portfolio will be delivered through SAE's Learning Management System which is accessible via sae.org and SAE Mobilus .
Purchase Options	Annual subscription packages and individual retail purchase.
Contact Information	For more information contact SAE sales and business development at customersales@sae.org and sustainablemobilitysolutions@sae.org .

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THURSDAY, FEBRUARY 20 (CONT.)

TIME	EVENT	LOCATION	SPEAKER/SPONSOR
11:40-12:30 pm	Better Ways to Handle Black Mass	WIGWAM BALLROOM	RENARA ARSENAULT (MODERATOR) FORD MOTOR CO Kraig Houser CIRBA SOLUTIONS Sidd Subramani HATCH Jim Craner TESLA
12:30-1:45 pm	Lunch	FRONT LAWN	Sponsored By AIRGAS
1:45-3:00 pm	The Li-Bridge Project: Where to From Here?	WIGWAM BALLROOM	
3:30-5:30 pm	Salt River Project ESS Tour	CONVENTION CENTER ENTRANCE	Matthew Rhodes SALT RIVER PROJECT Dale Fox SALT RIVER PROJECT
5:45-6:45 pm	Farewell Reception	TRELLIS GARDEN	Sponsored By EDWARDS VACUUM

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Find out how QAD enables long-term **manufacturing success.**

As an EV manufacturer,

you need to develop two great products: the end product you sell and the supply chain to deliver it.

QAD enables 80% of the world's top 20 automotive suppliers with purpose-built Manufacturing and Supply Chain solutions in the cloud.

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2023 EXHIBITORS *(Alphabetically)*

BOOTH

3DC, Inc	24
Absolute Engineering, LTD	5
Admiral Instruments	Registration
Advanced Test Equipment	23
Airgas, an Air Liquide company	19
Aquatech	16
Ascend Elements	26
BST North America	32
Busch Vacuum Solutions	21
Chroma System Solutions	34
Circulor	9
Denkai America	15
Duke Energy	2
Dukosi, Inc.	17
EaglePicher	1
Enersys	8

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2023 EXHIBITORS *(Alphabetically)*

BOOTH

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Labelmaster	30
Lithium Americas Corp.	11
Lyten	4
Maccor	10
Martin Automatic	29
Miracle Automation Engineering	31
Northeast Indiana Regional Partnership	Registration
Owen Design	Registration
P&C Recruiting and HR	3

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2023 EXHIBITORS *(Alphabetically)*

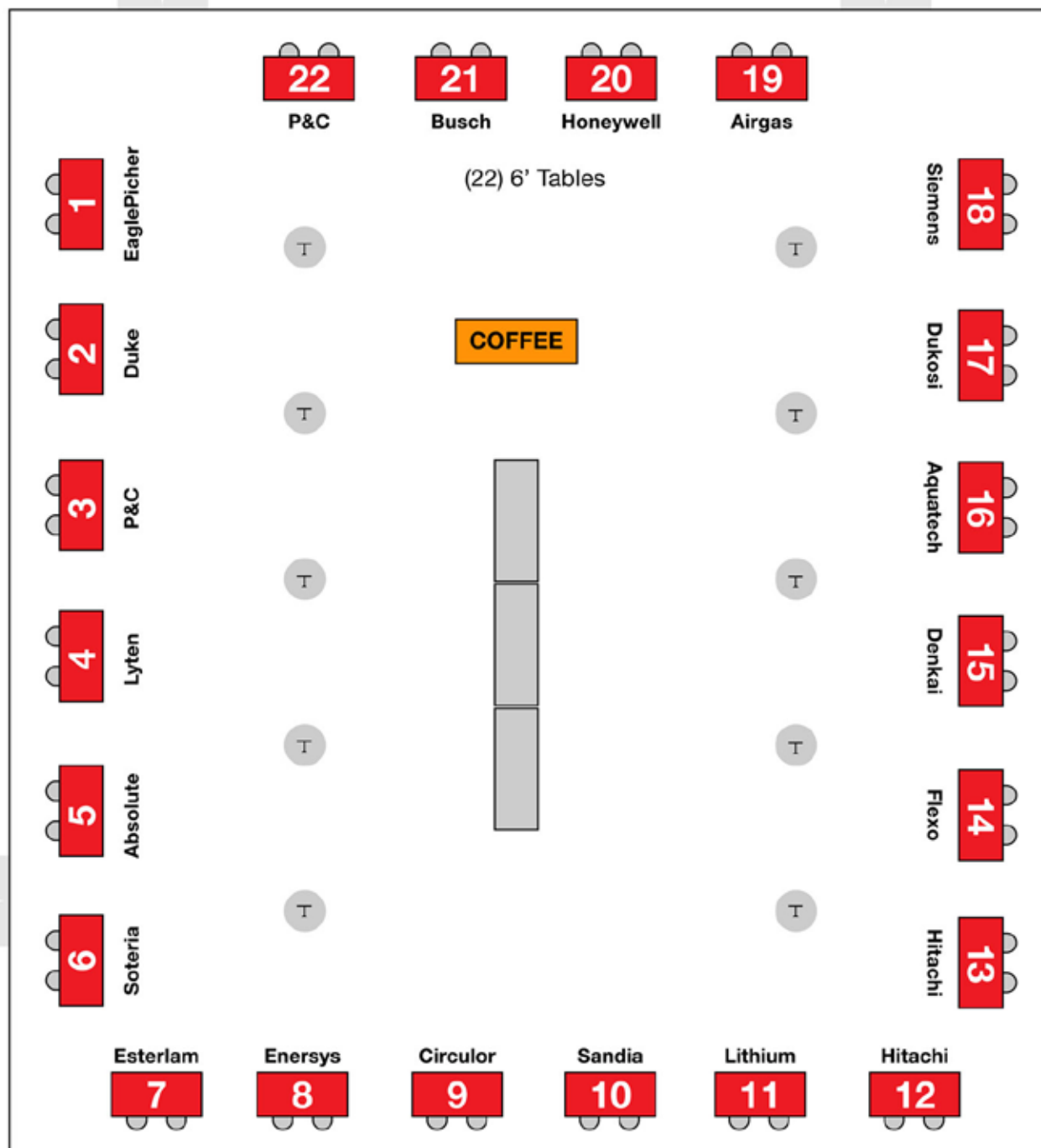
BOOTH

PACT ThermoShield	22
PEC North America Inc	28
Sandia	27
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Soteria Battery Innovation Group	6

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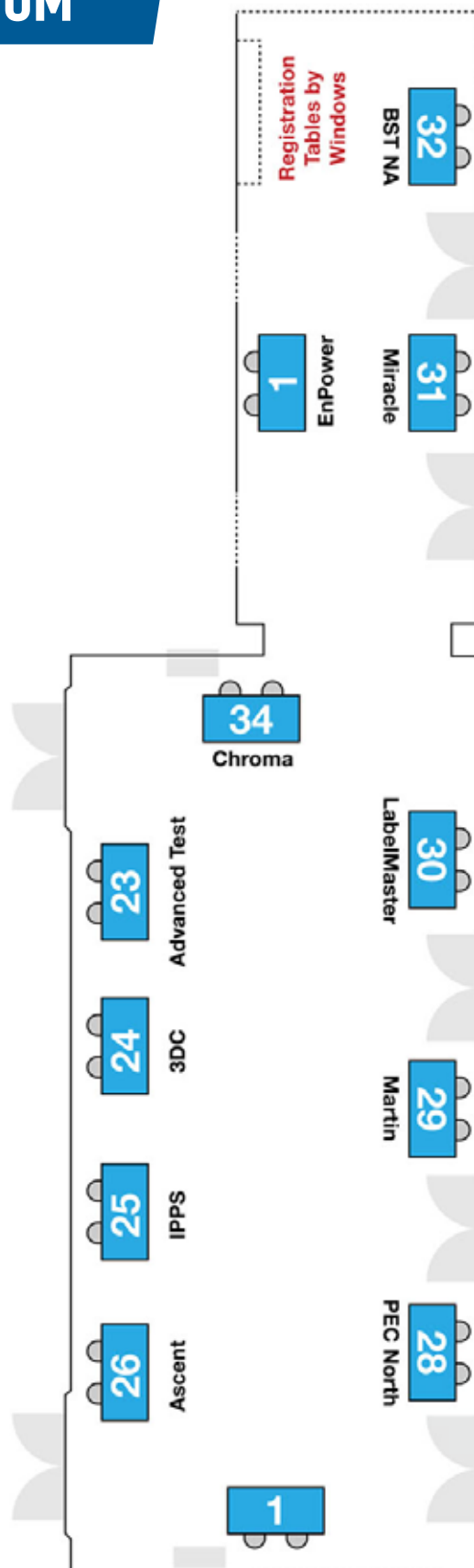
EXHIBITOR FLOOR MOHAVE BALLROOM

Both Entrances Are Used To Access The Exhibit Hall



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EXHIBITOR FLOOR WIGWAM BALLROOM



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3DC Inc. is a Japanese university spin-off startup researching and developing cutting-edge carbon material, Graphene Meso-sponge (GMS). GMS, which 3DC's cofounder Prof. Nishihara invents, has a precisely-controlled three-dimensional structure of a single atomic layer. Because of this feature, GMS can prevent the expansion and contraction of electrodes by deforming itself elastically. Also, GMS possesses high conductivity and strong chemical durability, which realizes high power density and long battery life. 3DC is researching ways to prevent electrode degradation and extend battery life by using GMS as conductive assistant material with collaborative research companies and institutions. The first production of GMS will be in 2024 in Japan, and mass production in North America will follow.



E

Absolute design and manufacture the World's only on press ultrasonic engraved roll cleaner - SONO. The system resolves the issue of cleaning engraved rollers 100% without removing them from the coating line. Smart design ensures it's a completely de-skilled process, carried out by Operators, not a maintenance crew. This allows frequent, quick, deep cleaning to provide a permanent, consistent laydown of coating without offline equipment, subcontract cleaning companies or maintenance crews. Ultimately it allows users to produce a more consistent reliable product with no unscheduled machine downtime due to laydown discrepancies.



E

Advanced Test Equipment Corp. (ATEC) is a leading provider of test & measurement equipment rentals, sales, calibration, and service. Since 1981, test engineers, government agencies, and Fortune 500 companies have relied on ATEC to guide them to the right equipment, ship it quickly, and offer them the industry's best technical expertise and customer care. ATEC's broad inventory includes EMC, Power Supplies & Loads, RF Safety, Electrical, NDT, Environmental, Communications, and General Purpose test equipment. Explore the ATEC inventory at www.atecorp.com.



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Airgas, an Air Liquide company, is a leading single-source supplier of industrial and specialty gases in any supply mode, plus dry ice, gas distribution systems, welding hardgoods, equipment, and safety products/PPE. Our supply chain solutions help gain efficiencies and save time. With Air Liquide, we offer a range of precursors and nanomaterials for advanced coatings of battery materials, plus chemical electrolyte distribution systems—all designed to help strengthen customer competitiveness in the global battery industry.

Backed by a global network of application-based experts, Airgas understands the fast pace of the battery ecosystem and how our bundle can be integrated in the complex flowsheets of mineral extraction and material processing, to the gas intensity of battery production, to integrating into vehicles, and first commercial operations in recycling. And we've been helping our customers fill their own potential for over 40 years—in-store, on site, over the phone and online at Airgas.com.

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EV + Hybrid & Consumer
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Discharging
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Mechanical Separation
Shredding
Online 2023 Q1

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We Buy:

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Lead-Acid • Absolyte
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Cell Phone • Power Tool
Electrode Production Scrap
Black Mass

We Sell:

Intermediate Concentrates
Carbon/Graphite
Battery-Grade Sulfates
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American Battery Solutions Inc. is an industrial and commercial battery manufacturer located in the heart of the U.S. automotive industry. Our team consists of battery systems experts with decades of experience in designing, developing and manufacturing advanced battery systems for the transportation industry. Collectively, we've helped launch some of the industry's most well-known programs with OEM customers, such as General Motors, Fiat Chrysler, BMW, Daimler-Mercedes and others.

Backed by a substantial investment from KCK Group, American Battery Solutions Inc acquired manufacturing and battery pack testing assets from Robert Bosch Battery Systems. As we have grown, ABS has assembled a world-class team of dedicated and experienced engineers. This team is equipped with a deep understanding of high-voltage, automotive-grade battery systems—from concept development and prototyping, to testing and validation, to high-volume production. Meaning no one is more qualified to work on a battery or ESS system that can power your energy needs.

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American Electric Power (AEP) is one of the largest electric utilities in the United States, delivering safe, reliable power to nearly 5.5 million regulated customers in 11 states. As one of America's first electric utilities, the company has been helping businesses find new sites for over hundred years. As a good steward to the communities AEP serves, the company's site selection experts help businesses navigate complex growth and relocation projects to find desirable industrial and commercial properties, with a special focus on meeting the needs of emerging clean energy tech and battery companies. For more information about AEP, go to: www.aeped.com.

Amphenol Sensors

S

Amphenol Sensors is a leading innovator in sensor technologies and measurement solutions! Offering the most diverse sensor portfolio of standard and customized products for the world's most demanding regulatory and industry-driven applications, Amphenol Sensors creates unparalleled value by providing critical information for real-time decisions.

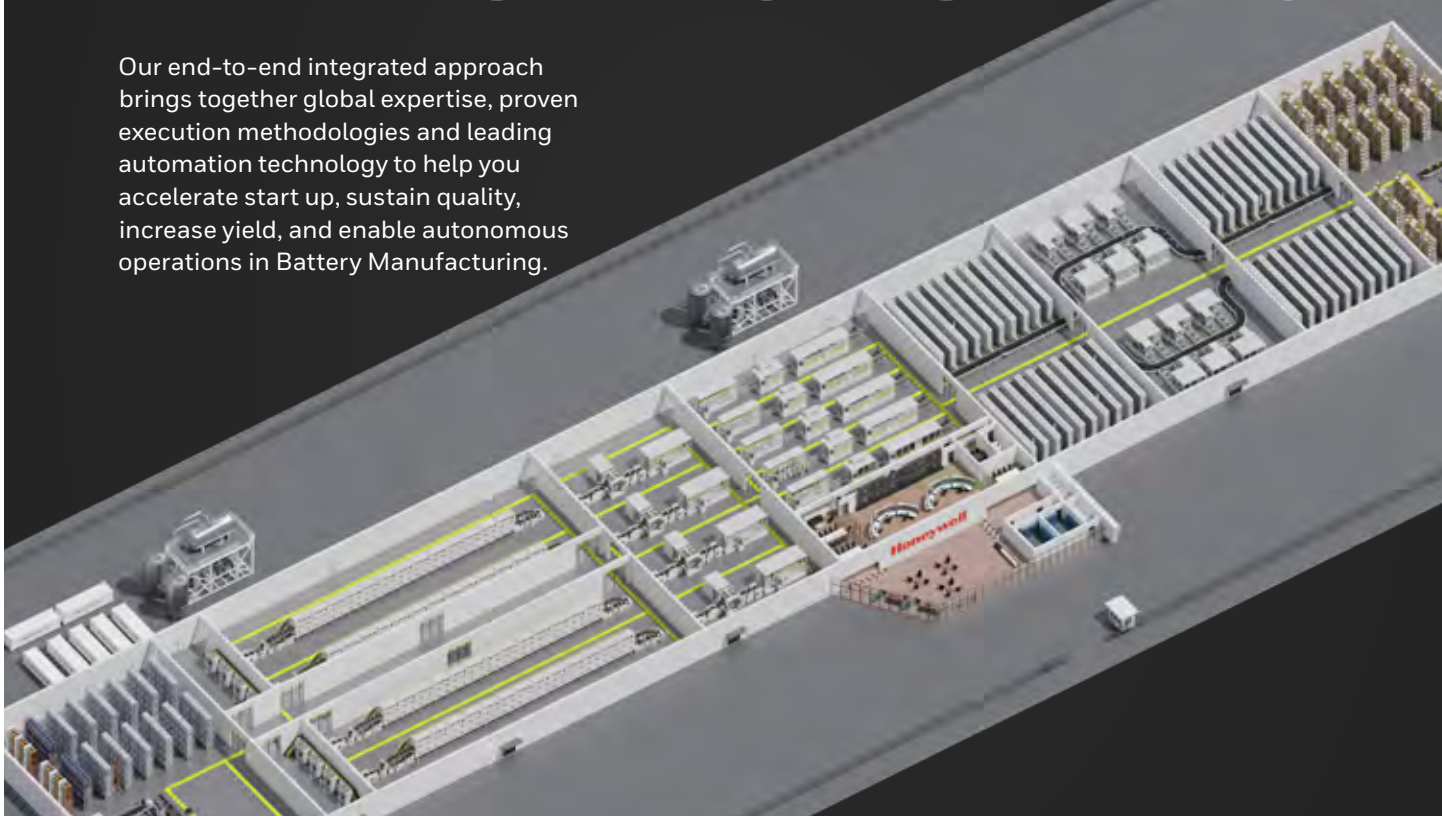


E

Aquatech is a recognized global leader in end-to-end process solutions to produce technical and battery grades of lithium carbonate, lithium hydroxide, and lithium salts. Leveraging its experience and know-how, Aquatech offers holistic solutions for the production of critical minerals for EV batteries and battery recycling, from applied development and testing with demonstration-scale process units to engineering and design, project management and execution, through post-installation operations and maintenance. Leveraging its experience and know-how, Aquatech has executed over 2,000 projects across 60 countries and helps the world's most recognized companies reduce their water, carbon, and environmental footprint, helping them achieve and sustain their sustainability goals.

A CONNECTED, INTEGRATED APPROACH FOR LITHIUM ION BATTERY MANUFACTURING

Our end-to-end integrated approach brings together global expertise, proven execution methodologies and leading automation technology to help you accelerate start up, sustain quality, increase yield, and enable autonomous operations in Battery Manufacturing.



- Enterprise-wide MES Integration
- Integrated Operations Center
- Connected Quality Management System
- Electrode Metrology & Process Control
- Thermal Runaway Mitigation
- Integrated Building Technologies
- Plant and Personnel Safety
- US Produced Electrolytes
- Thermal Interface Materials
- Automated Material Handling & Sorting

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Ascend Elements is commercializing an innovative battery recycling technology that transforms used lithium-ion batteries and manufacturing scrap into new, sustainable precursor (pCAM) and cathode-active material (CAM) for electric vehicle batteries. The process creates a truly closed-loop source of new battery materials in North America. The technology recovers up to 98% of critical metals, helping minimize the environmental impacts of mining. Hydro-to-Cathode® technology is significantly more efficient than traditional forms of battery recycling, producing battery-ready CAM at a lower cost and with up to 93% lower greenhouse gas emissions.



S

Blue Solutions is a pioneer in Solid-State batteries and a subsidiary of the Bolloré Group, founded in 1822. As the only manufacturer of commercially available solid-state batteries, we equip vehicles of leaders in the clean mobility sector.

Our two state-of-the-art manufacturing and R&D centers in France and Canada have been producing lithium-metal-polymer (LMP®) batteries for over a decade, following our proprietary design and manufacturing process.

Global customers include Daimler Evobus (12 and 18m, Europe), Custom Bus Denning Element (Australia), Mallaghan airport bus (N. Ireland), Blue Bus (6m and 12m, France, Africa and Asia), Volgabus (Russia), Style & Tech (9m lightweight design, Canada), and Gaussin Port Tractors (Ivory Coast, Qatar, and New Zealand). Contact us today to collaborate on the electrification of your EV product with a safe, long lasting, and performing solid-state battery!

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Busch Vacuum Solutions is one of the largest global manufacturers of vacuum pumps, blowers, and compressors. With more than 50 years of experience, Busch provides customized solutions for many vacuum applications.

Busch Vacuum Solutions USA headquartered in Virginia includes comprehensive manufacturing and system building departments. Service Centers from coast to coast provide both industrial and Medium High Vacuum service options. Our vast experience allows us to always provide the optimum solution from single vacuum pumps to tailor-made vacuum systems.

Our expertise ensures the optimum vacuum solution for lithium-ion battery production from mixing, drying, filling, degassing, and sealing. Our vacuum pumps and systems, backed by our extensive service network, support your production every step of the way.

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BST GmbH is the leading full-range supplier of web-guiding and quality assurance systems for roll-to-roll processing industries to include LI battery production. With over 60 years of experience in roll-to-roll industries, BST systems ensure high quality production, and make a significant contribution to higher production speeds resulting in sustainable increases in productivity.

Our inspection systems help battery cell production via high-speed camera technology that can identify, classify, and record defective material in process. During production of anode/cathode material, we can find defects such as: Agglomerates, Delamination, Voids, Wrinkles, Smears, and Pinholes.

Our web guiding technologies provide precise, high-resolution guiding of anode and cathode foils through coating, slitting, laminating, etc. Our high-precision guides can work in tandem with our camera systems to maintain very high tolerances throughout various production steps. We work with battery manufacturers throughout the world and our mission is to save operations money while assuring quality.



E

Chroma manufactures battery and power conversion test equipment and automated test systems. Chroma is the largest worldwide provider of high precision, integrated battery test and energy storage test solutions designed for lithium ion and other battery chemistry. From R&D to end of line, Chroma provides advanced battery test features including regenerative discharge systems that recycle energy sourced by the battery back to the channels in the system or to the grid.

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Cirba Solutions is the most trusted and only complete service provider in the battery management industry, taking batteries at end-of-life, processing them to extract critical materials and supply these materials back in the supply chain. With an operational, differentiated platform the full suite of capabilities addresses lithium-ion and cross-chemistry battery demand supporting a circular battery supply chain for the industry. It is the leader in end-to-end battery recycling management solutions, offering battery-centric logistics, collection program solutions, second-life applications, and validating cathode production, with technological processes that emphasize environmental compliance.

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Circulor is the leading provider of materials traceability, enabling companies globally to gain visibility into their most critical supply chains to prove and improve their ESG performance. Circulor offers a managed software solution that customers use to track the raw materials used within their manufacturing and recycling supply chains to demonstrate responsible sourcing and sustainability.

Circulor are a profit for purpose company, with a vision to enable customers to halve the impact of their global supply chains on Greenhouse Gas (GHG) emissions and eradicate human exploitation within the industrial supply chains.

We Built Today.
Let's Build Tomorrow.



HONDA
The Power of Dreams

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Denkai America and our parent company Nippon Denkai provide highly reliable electrodeposited copper foils for use as anode current collectors in advanced lithium-ion batteries. Our products include YB, SEED, and the TLB series foils each designed to meet different anode coating and assembly requirements. We support high volume and rapid prototyping applications.



E

Duke Energy, headquartered in Charlotte, N.C., is one of America's largest energy holding companies. Over the next 10 years, Duke Energy will invest \$40 billion for zero-carbon generation such as solar, wind and battery storage resources to achieve net-zero carbon emissions by 2050. In support of North America's advanced battery manufacturing supply chain, Duke Energy's Economic Development team provides power-intensive sites, competitive rates and incentives as well as renewable energy solutions to industrial projects in North and South Carolina, Florida, Indiana, Ohio and Kentucky.



E

Dukosi provides a unique battery monitoring system based on near field wireless communication and intelligent Chip-on-Cell technology. This innovative solution allows the most flexible battery design, optimized battery performance, highest safety standards, and lifetime provenance - in any wireless battery management (wbMS) application. Dukosi enables cell / module / battery manufacturers to cater to the needs of their application customers while reducing system costs significantly: on the battery, during the production process, and throughout the product's lifecycle.



E

EaglePicher Technologies is a leading developer and domestic manufacturer of advanced technology battery and energy storage systems for defense and aerospace markets. Our technology spans a broad range of primary and secondary battery solutions utilizing over 30 different electro chemistries, designed specifically to meet application requirements. Our capabilities enable us to design unique solutions for mission critical applications for advanced battery and energy storage systems.

As an AS9100 certified company, we are both OEM and OEM supplier of products utilized on weapons, undersea and surface platforms, manned and unmanned aircraft, and spacecraft (satellites, launch vehicles, and manned and unmanned space systems). Our nearly 100-year history and experience in battery development lends critical expertise to both the technology needs and manufacturing capability required for highly engineered solutions.

This isn't a battery.



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A key that unlocks the full potential of next-generation mobile technologies.

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Edwards is a leading supplier of vacuum pumping and leak testing solutions for lithium-ion battery manufacturers around the world. Trusted by a large base of OEMs and end users, we can help minimize your operating costs and, ultimately, accelerate your process.

We offer proven vacuum pumping systems that play a crucial role in developing a reliable battery with high performance and long life.

Our expertise is in vacuum technology. We have been in the business since 1919 and our knowledge runs deep. We design, develop and manufacture vacuum equipment to the very highest standards, to help our customers achieve their goals.



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EnerSys® is the global leader in stored energy solutions for industrial applications, complementing an extensive line of Motive Power, Power Systems and Specialty batteries with a full range of integrated services and systems.

Our mission is not simply selling products, but instead delivering solutions to meet the unique challenges our customers face in every market we serve. Motive Power batteries are utilized in electric forklift trucks, mining and other commercial electric powered vehicles. Energy Systems focuses on the telecommunication and broadband utility industries, renewables and data center applications requiring stored energy solutions. Specialty segment provides energy storage solutions to the aerospace & defense, transportation and medical device industries.



S

Enovix Corporation (Nasdaq: ENVX), is a next-generation, silicon-anode lithium-ion battery manufacturer. The team at Enovix is on a mission to power the technologies of the future. The company's proprietary stacked architecture enables a battery with high energy density, high cycle life and fast charging without compromising safety. Enovix is scaling its manufacturing for volume production. For more information visit www.enovix.com and follow us on LinkedIn.



E

EnPower, Inc., is a leader in advanced U.S. lithium-ion battery cell manufacturing. The company's technological advantage lies in its patented multilayer electrodes, which address the trade-off between energy and power. High power and energy density cells with EnPower's electrodes can repeatedly fast charge without degradation to service life, solving a critical challenge to the mass adoption of all devices that roll, float or fly.

MAKING OUR MARK WITHOUT LEAVING ONE.



At Stryten Energy, we're using real-world applications of vanadium redox flow battery technology for long-term storage of renewables such as solar and wind. It's just one way we're helping power the U.S. transition to a clean energy future.

Learn more at [Stryten.com](https://stryten.com).



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Esterlam are recognized as world No.1 in advanced laminated synthetic doctor blade technology. With decades of experience in all areas of coating & printing, Esterlam personnel & products offer the highest quality doctoring performance with the added advantage of full technical support drawn from decades of success in these industries. Our unique laminated doctor blade technology & edge profiling gives the performance of steel without dangers & abrasiveness. Other production benefits include instant start up, longer blade life, elimination of spitting or misting issues at higher press speeds & improved safety in the production environment. Used extensively in coating ceramic onto separator films & applying graphite in anode & cathode production, Esterlam offer improved performance while helping reduce production costs too. Our technical support team are happy to discuss your process to see if they can identify anything that may help improve your existing process for more reliable, consistent performance.

E

For more than 30 years, Flexo Concepts has been a leader in doctor blade innovation. We pride ourselves on having the most advanced suite of high-performance doctor blades for roll doctoring and roll cleaning. Our TruPoint doctor blades are the choice for many industry leaders, OEMs, and engineers. All TruPoint blades are manufactured and quality-tested in our USA headquarters and distributed globally.



TruPoint products have become the standard in coating & lamination, and are ideal for applying separator film coating, calendar roll cleaning on the anode and cathode layers of high-quality Lithium-ion batteries. Products like TruPoint Polylam, Renew, Orange, and Keon are optimized for various attributes including stiffness, wear, creep, or resistance to certain chemicals or temperatures. Whether your battery application requires a standard product or a custom engineered solution, we want to be your partner. For more information about the company and its global TruPoint portfolio visit www.flexoconcepts.com.

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Forge Nano is a leading materials science company harnessing the power of Atomic Armor, the company's proprietary ALD nanocoating technology, to accelerate manufacturing innovation, transform product performance and achieve a more sustainable future for a range of industries around the world. Atomic Armor produces superior coatings that can unlock a material's performance at the atomic level and deliver custom solutions from small-scale R&D and laboratory work to large-scale, high-volume production lines. A range of materials can be enhanced through Atomic Armor, including batteries, medical devices, catalysts, propellants, and 3D additives. Forge Nano has received major support and signed meaningful partnerships with Volkswagen, LG Technology Ventures, Mitsui Kinzoku, Air Liquide, and Sumitomo Corporation of Americas to name a few, largely as a result of the company's innovation in the Lithium-ion battery industry and successful track record of improving product performance and safety while reducing cost.



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Vacuum is critical in lithium-ion battery manufacturing processes to ensure the efficiency and the integrity of the finished cell. Our extensive range of rotary vane, dry screw vacuum pumps and tailor-made vacuum systems are perfectly suited to meet the needs of small pilot / R&D applications and large production Gigafactory demands. Rely on the trusted name for vacuum. Rely on Busch.

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VACUUM SOLUTIONS

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HITACHI Inspire the Next

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With more than 110 years of experience, Hitachi is actively reinventing to help increase quality of life for people across the globe with sustainable products and solutions used by consumers and across various industries such as automotive, power generation, and energy management.

Hitachi High-Tech is developing a Battery Degradation Diagnostics solution that evaluates the performance degradation and remaining life of lithium-ion batteries during or after use, enabling an efficient data management platform to monitor individual battery usage status, evaluate remaining performance at the reuse/recycling phases, and visualize supply-and-demand balance.

Hitachi America R&D is engaged in research activities that leverage big data analytics, internet of things, artificial intelligence (AI), machine learning, blockchain, and other technologies. These activities are designed to help organizations optimize operations, improve efficiency, and enable circularity in industrial products, electric vehicle, and battery energy storage value chains.

HONDA

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Honda established operations in North America in 1959. Today, the company employs more than 40,000 associates in the region engaged in the development, manufacturing, sales and service support of Honda and Acura automobiles, Honda power equipment, Honda powersports products and the HondaJet Elite II advanced light jet.

Based on its longstanding commitment to build products close to the customer, Honda operates 18 major manufacturing plants in North America, working with nearly 800 suppliers in the region to produce a diverse range of quality products. Honda has built automobiles in North America for 40 years and, in 2022, more than 99% of all Honda and Acura automobiles sold in the U.S. were produced in North America.

Honda also conducts research and development activities at 23 facilities in North America where we fully design, develop and engineer many of the company's North American-made products.

Honeywell

E S

Honeywell International Inc. is a multinational technology corporation headquartered in Charlotte, North Carolina. It primarily operates in four areas of business: aerospace, building technologies, performance materials and technologies (PMT), and safety and productivity solutions (SPS). Honeywell through main automation contractor approach brings together our global expertise, proven execution methodologies and leading automation technology to underpin you in getting your world class battery production facility to nameplate capacity faster, together with plant and personnel safety and leading sustainability solutions.



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**HUNTSMAN**

Huntsman Corporation is a publicly traded global manufacturer and marketer of differentiated and specialty chemicals with 2020 revenues of approximately \$6 billion. Our chemical products number in the thousands and are sold worldwide to manufacturers serving a broad and diverse range of consumer and industrial end markets. Our portfolio of technologies for batteries includes conductive additives, carbonates, multifunctional binders, NMP alternatives, adhesives, and adhesive components to help manufacturers increase battery capacity, lengthen cycle life, enable faster charging, and reduce EHS concerns. These materials leverage our 50-year history of innovation and proven know-how in advanced materials as well as amine, polyurethane, and epoxy chemistries. Today we operate more than 70 manufacturing, R&D and operations facilities in approximately 30 countries and employ approximately 9,000 associates within our four distinct business divisions. Many of our battery materials are manufactured in the United States including carbon nanotubes, carbonates, and amines.

**interco**
A METALTRONICS RECYCLER

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Interco is a global leader in the recycling of electric vehicle and consumer electronics lithium-ion batteries. The company has leveraged its 25+ years of expertise sourcing, processing, and marketing industrial metals such as copper, aluminum, and stainless steel to become an international market leader. Interco developed high-volume, low-cost patented methodologies to service the major battery OEMs and Auto Manufacturers.

As early as 2013 Interco began dismantling, discharging, and processing EV batteries early in the energy revolution. Since that time, the Interco team has established a deep knowledge and understanding of the entire critical metals supply chain – the suppliers, producers, and generators – on a global scale. Interco produces end-products to produce sulphates and carbonates that are re-channeled directly into the battery supply chain. The process establishes the only true closed-loop solution in the marketplace.

In Q2 2023, Interco will unveil an expanded 200,000+ sq. ft. Critical Mineral Recovery™ lithium-ion battery recycling plant. The state-of-the-art facility will have a capacity of more than 60,000 tons per year.

E

IP PowerSystems offers smart electrolyte filling equipment for Lithium-ion battery cells: round or prismatic hard case, as well as pouch cells. Our machines offer quick, precise electrolyte filling. You'll find us in R&D labs and pilot lines, as well as fully automated mass production lines. Our filling technology ensures precise electrolyte filling every time with smart processes like pulsating or preheating of the electrolyte.

Thanks to the modular construction of our machines, battery cell filling is scalable and more stations can easily be added to quickly increase capacity. Automation with robots is also available as a current or future add-on.

For R&D we offer filling machines with many adjustable parameters. Most of our innovative technologies have patents or are patent pending.

Of course IP PowerSystems offers engineering and after-sales service for all its product lines. Come visit us at Booth 25 to learn more, or visit our website: ip-powersystems.com



PowerSystems

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Labelmaster helps manage large format lithium battery transport—There's so much more to transporting very large-format lithium batteries than just the crate. You also need regulatory expertise and end-to-end supply chain support from a partner who has managed every aspect of the process for some of the world's largest companies.

We make large format lithium battery and CMA transport compliant, efficient and stress-free. We've helped handle some major recalls, so you can count on our DDR expertise and experience. Labelmaster is the leading supplier of resources for Dangerous Goods compliance, with more than 50 years' experience helping companies in multiple industries navigate the hazmat supply chain.



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Li-Cycle (NYSE: LICY) is on a mission to leverage its innovative Spoke & Hub Technologies™ to provide a customer-centric, end-of-life solution for lithium-ion batteries, while creating a secondary supply of critical battery materials. Lithium-ion rechargeable batteries are increasingly powering our world in automotive, energy storage, consumer electronics, and other industrial and household applications. The world needs improved technology and supply chain innovations to better manage battery manufacturing waste and end-of-life batteries, and to meet the rapidly growing demand for critical and scarce battery-grade raw materials through a closed-loop solution. For more information, visit Li-Cycle.com.

Featured Products:

- Closed-loop lithium-ion battery resource recovery
- Recycling lithium-ion batteries and battery manufacturing scrap
- Low-temperature and wet-chemistry processing approach

**Lithium
Americas**

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Lithium Americas Corp. is focused on advancing lithium projects in Argentina and the United States to production. In Argentina, Cauchari-Olaroz is advancing towards first production and Pastos Grandes represents regional growth. In the US, the Thacker Pass project has received its Record of Decision and is advancing towards construction. Lithium Americas is a Canadian-based company listed on both the Toronto Stock Exchange (TSX: LAC) and New York Stock Exchange (NYSE: LAC).

LYTEN

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Lyten's patented Lithium-Sulfur LytCell EV™ batteries will deliver up to three times the energy density of conventional lithium-ion batteries, enable better charge rates, vehicle range, weight optimization, sustainability, affordability, and safety for applications in electric vehicles, aerospace, aviation, off-highway, stationary storage, and defense.

Lyten is an advanced materials company that developed a sustainable super material platform called Lyten 3D Graphene™ which is engineered through a process of decarbonizing methane gas. 3D Graphene technology enables Lyten to make our cathode out of abundant sulfur, rather than increasingly scarce and expensive nickel, which means we will produce one of the first North American-sourced high-performance battery platforms for EVs and beyond.

Founded in 2015, Lyten had a growing list of over 300 patents granted and pending and is a privately held company based in San Jose, California.

VACUUM SOLUTIONS FOR LITHIUM-ION BATTERIES

Edwards is a leading supplier of vacuum pumping and leak testing solutions for lithium-ion battery manufacturers around the world. Trusted by a large base of OEMs and end users, we can help minimize your operating costs and, ultimately, accelerate your process.

We offer proven vacuum pumping systems that play a crucial role in developing a reliable battery with high performance and long life.



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Maccor manufactures testing equipment for the battery and energy storage market (i.e. batteries, capacitors, fuel cells, etc.). Maccor Inc. was the pioneer, and is the world's largest commercial manufacturer for this type of equipment. Maccor continues to be the leader in technological innovation for both hardware and software to allow the test systems to be configured for any application and is recognized the world over as the industry standard in performance, reliability, speed, accuracy, precision and customer support. More companies rely on Maccor everyday for their battery and cell test equipment needs. Now Maccor systems are more powerful than ever with EIS integration which allows the system to perform in situ impedance spectroscopy experiments when integrated with a Solartron Analytical or Princeton Applied Research frequency response analyzer. Maccor also supplies cell formation equipment for a variety of cell formats and sizes. Today Maccor has thousands of systems in operation in more than 60 countries with local sales and customer support services available in many areas.



Martin Automatic

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High performance splicing, rewinding and tension control systems. Martin Automatic Inc is a U.S. based company with locations in Europe and the Pacific Rim. With nearly 8,000 installations in more than 50 countries, Martin Automatic is known for its extensive line of automatic splicing unwinds, automatic transfer rewinds and tension control systems based on its patented inertia compensation technology. Martin has provided innovative solutions for the most demanding web handling challenges, including lithium-ion manufacturing processes, webs designed to produce cathode and anode cells and battery and electronics films. Martin Automatic has been developing, engineering and manufacturing automation solutions for over 53 years.

E

Founded in 1984, Miracle Group is committed to serve the whole lifecycle of automobile industry, from car manufacturing, intelligent equipment, car shredder, and lithium battery recycling. Our clients include Benz, BMW, AUDI, FORD, GM, Chrysler, TOYOTA.

As a leader in battery recycling industry, Miracle developed a full range of technologies in last decade, from classification-disassembly-crushing-hydrometallurgical recovery, to deliver battery grade materials, including lithium carbonate, cobalt sulfate, nickel sulfate, manganese sulfate, and cobalt oxide.

Currently, Miracle has 50,000 tons annual capacity for NCM battery recycling. A new 250,000 tons plant for LFP battery is under construction and is expected to be in operations in 2023.

Miracle is exploring our international path for battery recycling since recently. Our goal is to seek local partners, to utilize our technologies fulfilling the obligations of the Extended Producer Responsibility and meeting the requirement of critical mineral material to be recycled locally within its country.



天奇股份
MIRACLE AUTOMATION

Forge Nano is a world leading materials science company.



Harnessing the power of Atomic Armor, our proprietary nanocoating technology, we accelerate manufacturing innovation and transform product performance to achieve a more sustainable future.

Atomic Armor is the application of ALD coatings done with the speed, precision and know-how that will unlock your product's performance and pave the path to commercialization.



Lower
cost



Improved
performance



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safety

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- **Atomic Armored Silicon** – Higher first cycle efficiency, longer cycle life, improved product yield
- **Atomic Armored Solid Electrolyte** – Lower resistance, improved interfacial stability

Atomic Armored products not only have higher performance, but enable improvements to manufacturing efficiency and innovation



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Nomura Research Institute America, Inc.

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Nomura Research Institute (NRI) is a global research consulting firm headquartered in Japan with annual sales exceeding \$5 billion. Leveraging our consulting expertise, NRI provides state-of-the-art managed services to equip our clients to thrive in the new digital era. NRI has over 30 years of battery industry consulting experience – dating back to the time of lithium-ion battery (LIB) commercialization in the 1990s – and has conducted hundreds of studies on LIB and its global supply chain. NRI believes that the collaboration between US and Asian companies would accelerate and promote the development of US-made LIB supply chain. With a 50-year track record of success and a team of 13,000 skilled professionals in more than 50 offices globally, NRI has supported a number of collaborative projects between US and Asian companies to stimulate the localization of US supply chains in the battery field.



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The NEI vision is to be the location of choice for all businesses and people committed to be tomorrow's market leaders. NEI exists solely to help you make the ideal choice for your business expansion or relocation. Northeast Indiana. Pioneer Starts Here.



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Capital equipment design and manufacturing services for manufacturers in semiconductor, energy, battery, medical device and pharma, mobile devices and emerging technologies. Specialties include complex system design, precision mechanisms, high vacuum design, wafer automation platforms, thermal environments and high throughput processes. Turnkey manufacturing from prototype through production volumes.

For battery and energy storage companies Owens Design has had recent projects in:

- Very thin foil and substrate handling (10 micron and below)
- Roll to roll film handling
- Laser drilling, cutting, welding and edge forming
- Anode, Cathode and separator film stacking
- High speed film and substrate handling (3600 per hour or 1 part per second)
- Metrology and vision inspections of cell materials
- Cell and pack level test
- Custom cassette handling

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P&C Recruiting and HR provides recruiting and human resources services to the green energy and mining sectors throughout the Americas. Visit booth #3 to learn more about the work we do for other NAATBatt member companies and others!

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Packaging and Crating Technologies is a world leader in manufacturing industrial packaging and crating solutions. PACT has more than 35 years of experience in the packaging industry with our headquarters in Watertown, Connecticut. Our product lines include industrial crating, custom packaging, Thermo Shield and TR Sleeve. Thermo Shield controls and suppresses thermal runaway of recyclable and damaged/defective lithium ion batteries. TR Sleeve is used around individual cells within a battery pack to stop propagation in a thermal event.



E

PEC supplies turn-key test and manufacturing solutions for battery cells, and supports its customers from cell development to mass production in giga-factories around the world.

PEC's automated cell finishing lines are integrating all process steps after cell assembly into a single automated line, including electrolyte filling, soaking, formation, grading, degassing, ageing, stand loss, sorting, and final inspection. www.peccorp.com



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QAD Inc. is a leading provider of adaptive, cloud-based enterprise software and services for global manufacturing companies. Global manufacturers face ever-increasing disruption caused by technology-driven innovation and changing consumer preferences. In order to survive and thrive, manufacturers must be able to innovate and change business models at unprecedented rates of speed. QAD calls these companies Adaptive Manufacturing Enterprises. QAD solutions help customers in the automotive, life sciences, consumer products, food and beverage, high tech and industrial manufacturing industries rapidly adapt to change and innovate for competitive advantage.

Founded in 1979 and headquartered in Santa Barbara, California, QAD has 30 offices globally. Over 2,000 manufacturing companies have deployed QAD solutions, including enterprise resource planning (ERP), digital supply chain planning (DSCP), global trade and transportation execution (GTTE), quality management system (QMS) and strategic sourcing and supplier management, to become an Adaptive Manufacturing Enterprise.

A map of the United States is shown in the background, with states outlined in white. A solid red horizontal band crosses the middle of the map. The text is overlaid on this background.

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Founded in 2015, Renewance's mission is to promote the transition to greener energy and mobility solutions through enabling the safe and sustainable use of industrial batteries. To maximize recovery rates of critical battery materials, end-of-life reverse logistics must be simple and provide the most cost effective, environmentally friendly, and compliant solution. Renewance delivers on this need through **RenewanceConnect™**, a digital marketplace for end-of-life battery reuse and recycling.

At Renewance, we believe sound end-of-life management starts at the beginning-of-life. Proper commissioning and maintenance are critical to ensure your battery system enjoys a long and healthy life. Renewance provides expert commissioning, maintenance and repair services throughout the battery lifecycle. When end-of-life eventually comes, Renewance is an industry leader in battery system decommissioning, offering turnkey decommissioning services including de-energization, disconnection, equipment removal and site restoration.

Renewance is your trusted partner for proper management of industrial batteries throughout the lifecycle!



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Our Mission: To advance mobility knowledge and solutions for the benefit of humanity.

Our Vision: SAE is the leader in connecting and educating mobility professionals to enable safe, clean, and accessible mobility solutions.

SAE International is a global association of more than 128,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. Our core competencies are life-long learning and voluntary consensus standards development. We support our global stakeholders and members through world class products and programs including standards, technical information products, professional development, membership, engineering events, pre-professional education and the SAE Foundation.

In 2022, SAE International created a new innovation unit, Sustainable Mobility Solutions (SMS) to benefit humanity with a science-based, technically-feasible set of information and training initiatives that support the mobility industries' progress to a net zero emission future. With a focus on electric vehicle infrastructure, battery lifecycle, circular economy and workforce development, SMS discovers, incubates, develops and demonstrates initiatives that lead to net zero emissions.

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Laboratories**

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Sandia National Laboratories' vision for enabling electric grid modernization and a clean energy future includes diverse energy storage research programs and engineering efforts that range from basic R&D to large-scale demonstrations and deployments. Utilizing state-of-the-art capabilities and world-class expertise, we focus on making energy storage safe, reliable, and cost-effective. Sandia conducts research in six areas of stationary and distributed energy systems: Safety & Reliability, Power Electronics, New Battery Technology, Distributed Energy System Modeling and Analysis, National Policy Development and Outreach, and Demonstrations and Pilot Projects. We also support the Energy Storage for Social Equity (ES4SE) initiative, designed to empower urban, rural, and tribal disadvantaged communities to consider energy storage technologies and applications as a viable path toward community prosperity, well-being, and resilience. Through this program, eligible communities have access to technical assistance and support for new energy storage project development and deployment. Visit us at Booth # 10!

S

When it comes to handling raw or refined bulk materials, Schenck Process has the experience and production expertise to meet the challenges for producing high energy lithium-ion batteries. From anode and cathode transfer systems to gravimetric feeding or dust collection, Schenck Process can provide the equipment and overall project management to meet your operational needs.



For anode and cathode powder transfer, Schenck Process accomplishes this in a controlled, energy-efficient manner through either vacuum or pressure dense phase conveying systems where velocities are minimized, and abrasion is mitigated. Schenck Process also supplies process equipment upstream and downstream of the transfer systems, providing one point of accountability for an entire system. Within our portfolio of manufactured solutions, we also have Kemutec and RBS. Kemutec solutions include centrifugal sifters, cone mills, and classifier mills. RBS calciners are used in lithium refining as well as re-processing black mass from recycle operations. Whether it's a cone mill, sifter, calciner, gravimetric feeder or conveying system, Schenck Process has the equipment and expertise to recommend the right solution for each application.

SIEMENS

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Siemens is an innovation leader in automation and digitalization. We provide companies with end-to-end solutions to better integrate and digitalize the entire value chain.



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With our fully traceable recycling programs we make recycling what it should be, easy. Flexibility and adaptability sit at the forefront of our approach to electronic vehicle battery recycling. Delivering what you need today and planning for what you need tomorrow. Recycling these batteries provides valuable materials to the circular economy and expands sustainability efforts.

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At Soteria Battery Innovation Group, we understand the risk you take by using batteries built with potentially unsafe technology. What if you could feel confident knowing your company is using batteries with the safest technology available?

As a consortium for the battery industry, Soteria is dedicated to solutions for the root cause of battery safety events, enabling your products to be powered by inherently safe cells. Our two patented technologies, combined with consortium innovations, address battery safety for the benefit of the whole industry. When you join, we'll help you identify high-value strategic partners, execute commercialization projects for battery safety, and participate in an open dialogue around best practices for safer batteries.



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South32 is a global mining and metals company listed on three exchanges and with market capitalization of more than US \$13 billion as of August 2022. The commodities South32 produces include bauxite, alumina, aluminum, copper, silver, lead, zinc, nickel, metallurgical coal, and manganese, and the company is actively increasing its exposure to the base metals critical for a low-carbon future.

South32 currently has more than 25 greenfield exploration partnerships and projects, mainly in the Americas, that are targeting base metals, including the Hermosa Project in Santa Cruz County, Arizona. Hermosa is the only advanced manganese project in North America, with potential to supply US battery-grade manganese demand. It is in advanced study stages and is being designed as an underground mine using low-carbon design principles in line with South32's goal of achieving net zero operational carbon emissions by 2050. It would also sustainably produce a second US critical mineral, zinc, as well as silver and lead.



**STRYTEN
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Stryten Energy helps solve the world's most pressing energy challenges with a broad range of energy storage solutions and components across the Essential Power, Motive Power, Transportation, Military and Government sectors. Headquartered in Alpharetta, Georgia, we partner with some of the world's most recognized companies to meet the growing demand for reliable and sustainable energy storage capacity. Stryten powers everything from submarines to subcompacts, microgrids, warehouses, distribution centers, cars, trains and trucks. Our stored energy technologies include advanced lead, lithium and vanadium redox flow batteries, intelligent chargers and energy performance management software that keep people on the move and supply chains running. An industry leader backed by more than a century of expertise, Stryten has The Energy to Challenge the status quo and deliver top-performing energy solutions for today and tomorrow. Learn more at www.stryten.com.

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WIGWAM RESORT MAP

