



A Collaborative Path to Advancing Battery Safety

**How a Global Network Can Collectively
Power Innovations**

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Battery safety is a shared challenge relevant for everyone

Whether you're developing next-generation electrolytes, assembling cells, designing devices, or researching failure modes, battery safety touches your work. Lithium-ion batteries power so much around us, and as their applications grow, so does the importance of safety. While battery fires are rare, they are quick and ferocious, and they can be extremely difficult to extinguish.

Yet as important as safety is, there is no one single silver bullet that will achieve it. One promising material or one new sensor alone won't ensure safety. Safety must be designed into every step of the battery system - from materials to pack design and customer use. Because when energy is densely packaged, even small defects can cause outsized consequences.



Figure 1: The Otay Mesa energy storage fire burned for nearly two weeks after starting on May 14, 2024 as the result of thermal runaway. Picture provided by San Diego Fire-Rescue.

A tiny metallic burr created during electrode missing. A misaligned tab during cell assembly. A charger that cuts corners. These seemingly minor issues can lead to thermal runaway, and one cell overheating can lead to another, and another. A battery pack that's been operating perfectly for months can suddenly fail - leading to dangerous and costly fires. We see examples everywhere, such as the Otay Mesa energy storage fire, or a growing number of e-bike battery incidents in New York City, or garbage disposal trucks catching on fire when they pick up residential trash. These aren't isolated incidents; they are reminders that safety isn't optional - and it isn't simple.

Battery safety is not a feature. It's a system that crosses company lines and national borders. No one company has all the answers, but together, we can share what's working and identify existing gaps. When CT scans and x-rays detect a defect, those findings can inform product design. When fire investigators share thermal imaging from an incident, that data can help refine safety protocols. When material innovators, OEMs, and first responders are in the same meeting, solutions can be uncovered.

These connections don't happen by chance. They happen when the industry comes together to learn from one another. And with every improvement, we not only reduce risk, but strengthen public confidence in battery-powered technologies. Together, we can build safer batteries not just for one application, but for all of them.

Establishing an ecosystem built for safety innovations

Soteria Battery Innovation Group was formed with the vision of advancing battery safety - and the Consortium is how we do it together. This isn't just a traditional trade association or networking group. It's a collaborative ecosystem that spans the battery value chain, from raw material providers to device manufacturers and emergency responders. Within the Consortium, companies bring their unique perspectives and challenges to the table to contribute to a shared goal: safer batteries for everyone.

The Consortium is a place to hold an open dialogue, where members can speak candidly about real-world challenges, without overhyping the risks or overselling solutions. It's a space where insights are shared across disciplines - where a pack designer might learn from an engineering services provider, and a cell maker might discover how an end-user tests their batteries for realistic abuse scenarios. Whether it's highlighting flame-retardant plastics for housings, smarter BMS designs, or rigorous testing protocols, the Consortium shines a light on many ways safety can be designed into a battery system. It's not about promoting one solution - it's about elevating all of them.



Figure 2: From left to right, panelists Gordon Renshaw (Columbia Vehicle Group), Chris Turner (Inventus Power), and Brian Morin (Soteria) discuss insights into safety in light e-mobility applications.

Collaboration in action: how we work together

Just as battery safety requires multiple strategies across the system, the Consortium offers members a range of ways to engage, contribute, and collaborate.

Webinars That Spark Real Conversations

The Consortium hosts monthly webinars on practical, timely topics - creating space for subject matter experts to share knowledge and for members to connect on challenges, such as:

- [Insights Into E-Bike Battery Safety](#): this webinar brought together perspectives from UL, Zipidi, and

Soteria to explore mechanisms behind e-bike battery fires, current battery standards, and an understanding of global risk management.

- Anatomy of Fire Investigations Involving Lithium-ion Batteries: a three-part series led by Inception Forensic Engineering and Exponent broke down the investigative process behind fires involving lithium-ion batteries, from consumer devices to grid-scale energy storage systems.

In-Person Meetings That Build Relationships and Share Ideas

Held alongside major battery trade shows, member meetings are structured for sharing ideas and fostering connections. These half-day sessions include topical presentations, informative panels, and a technology showcase - along plenty of networking time for members to explore collaborations, share updates, and connect across the supply chain. Plus, there's always some great food & drinks!



Figure 3: Members gathered together during a meeting, sharing insights.

Projects That Inspire Collaborative R&D With a Purpose

When a challenge surfaces in the industry, the Consortium can bring together the right voices to address it. An example is the E-Bike Battery Safety Project, launched in June 2023, that united 17 organizations - including the FDNY, NASA, Dow, and Polaris - to analyze battery safety issues specific to e-bikes. Together, the group toured used and new battery packs, surveyed e-bike riders to understand real use, and developed a design guideline to define minimum safety features for safer e-bike batteries.



Figure 4: E-bikes safely charging in urban location.

Advancing Safety Standard & Design Guidelines

Sometimes safety requires going beyond compliance. With input from members, the Consortium develops specifications that set a higher bar - like the design specification created through the E-Bike Battery Safety Project. These efforts reflect the collective expertise of the group and a shared commitment to improving real-world outcomes.

Task Forces That Take Action

When gaps are identified, the Consortium forms task forces to focus efforts and respond quickly. One example is the Battery Safety Education Task Force, launched in January 2025. This team - featuring San Diego Fire-Rescue, BMW, Proterra, Toxic Suppression, and others - is working to address training

gaps for both emergency responders and battery manufacturers. The goal: to create a certified curriculum that supports safer handling, design, and incidence response.

The Battery Safety IP Exchange That Makes Safer Technology Accessible

To lower the barriers to safer battery systems, the Consortium launched the Battery Safety IP Exchange. This portfolio brings together critical safety technologies - from materials and components to detection and mitigation - and makes them available under a single, global, non-exclusive license. The structure is simple: one royalty, based on the value of the battery cells, grants access to the entire portfolio. Companies can license the IP through Consortium membership or a one-time fee. This approach unlocks access to impactful technologies and empowers manufacturers to design safer products.

Building the future of battery safety together: how can you get involved?

If you're exploring how your company can play a role in advancing battery safety, there are several ways to engage. Prior to joining, you can:

- [Schedule a call to learn more](#) about the Consortium and explore how it might support your strategic goals.
- Access reports and specifications that offer insights into current safety challenges and best practices.
- Attend one of our open events, like our annual [LithiumSAFE: Battery Safety Workshop](#), where experts from across the industry come together for live battery fire demonstrations and panel discussions on safety topics.
- Join a public webinar to hear directly from leaders in safety innovations.



Figure 5: Thoughtful discussion during the “Insights into E-Bike Battery Safety Webinar”.

For members, the Consortium opens the door to deeper, ongoing collaborations:

- Participate in exclusive projects, task forces, webinars, and member meetings where ideas can become solutions.
- Contribute to the development of new design specifications and training programs.


- Connect with peers across the battery ecosystem who have a shared interest in safety and build relationships that lead to real progress.
- Access 100+ hours of on-demand content and technical reports that can advance your spot as a thought leader.

Battery safety affects all of us. No single company, technology, or idea can solve challenges alone. But together, through shared knowledge and purposeful collaboration, we can raise standards - and lower the risk - for everyone.

The Consortium is more than a network. It's a platform where the industry can come together to move safety forward. Where researchers, manufacturers, and emergency responders sit at the same table. Where real-world challenges are met with collective solutions, and where companies of all sizes can contribute to a safer future. Every member brings a different piece of the puzzle, and when those pieces come together - through meaningful projects, task forces, events, and open dialogue - we accelerate innovations that none of us can achieve alone.

Whether you're developing technology, designing products, leading business development, driving regulatory strategy, or supporting customers in the field - your voice matters. The Consortium is your place to be heard, to learn, and to lead. Battery safety isn't just a challenge - it's an opportunity to do things better, **together**.

Learn More:

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