ADVANCED CELL ENGINEERING™

Driving advancements in lithium-ion technology.

ACCELERATING INNOVATION:

TECHNOLOGY DEVELOPMENT
PORTFOLIO LICENSING
TECHNOLOGY TRANSFER

Accelerating the future starts here.

At ACE, we're driving to set new standards for the performance of lithium-ion batteries for the automotive industry. **We develop and license safe, advanced battery chemistries and cell formats that have a meaningful impact on electric vehicle performance.**

Our team is made up of experienced electrochemists, engineers, and manufacturing experts who have dedicated themselves to transforming the EV industry and helping our customers succeed.

What we do.

As innovation accelerators focused on Li-ion technology, we create higher performing chemistries and innovative cell formats to optimize the performance of our customers' applications. Then, by forming strategic partnerships with our customers, we help them apply better performing battery technologies more quickly, stay agile in adopting and producing new technologies, and implement in their facilities with excellence.

WE ARE AN INNOVATION ACCELERATOR

Technology Development	▶▶	Superior Performance
Portfolio License	▶▶	Innovation Agility
Technology Transfer	▶▶	Implementation Excellence

STRATEGIC PARTNERSHIPS

Everything we do is aimed at accelerating innovation to help our customers excel.

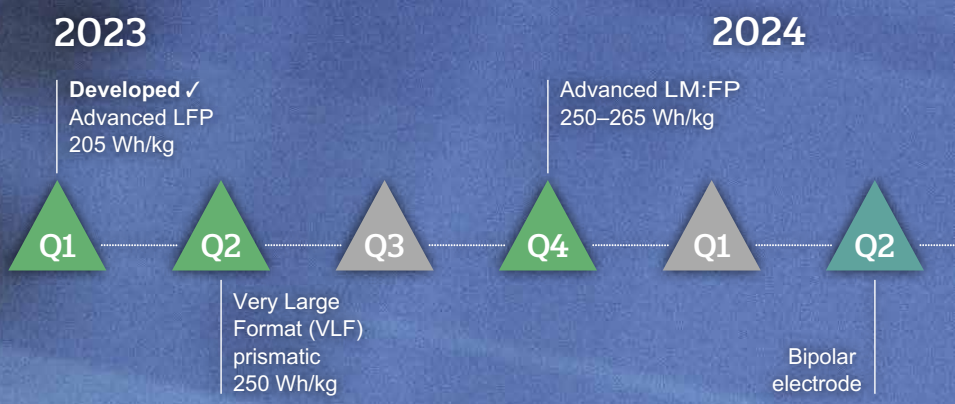
TECHNOLOGY DEVELOPMENT

Superior performing battery technology for superior performing applications.

The evolution to electric vehicles will play a major role in the world's transition to clean energy. That's why we are working hard every day to develop higher performing chemistries and cell formats that make a meaningful difference for the design, performance, and broad adoption of EVs. Of course, it's also imperative that these innovations are safe, cost-effective and able to be implemented easily.

Our technology roadmap is driven by the needs of EVs.

Our team is working hard to develop a continuous stream of improvements that align with the needs of electric vehicle manufacturers. As shown in the roadmap below, our innovations will provide safe technologies with even higher energy density, faster charging and other attributes that will lead to better performing electric vehicles.

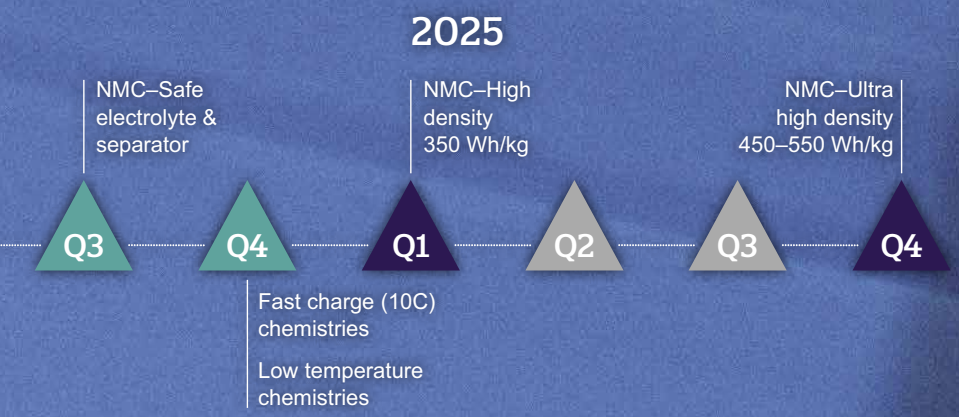


WE LEVERAGE DECADES OF EXPERIENCE IN LITHIUM-ION TECHNOLOGY DEVELOPMENT.

- Our team's extensive experience in cell development and materials science enables us to reach our goals quickly.
- Evolutionary can be better than revolutionary. We start with successful basic electrochemistries, then look at every aspect of the cell for opportunities to boost performance. Targeted refinements add up to big improvements that are quickly scalable.

WE DEVELOP TECHNOLOGY WITH SCALE-UP IN MIND.

- Our chemistries can be produced in any format on standard manufacturing equipment, making it easy for licensees to adopt our technologies without capital expenditures.
- Our chemistries use materials that are readily available; they do not include rare earth, developmental, or highly expensive materials.
- Our innovations readily transition from the lab to high volume manufacturing.



PORTFOLIO LICENSING

Provides innovation agility.

The only thing that's constant is change. As the EV landscape and drivers' needs continue to evolve, it will be critical to stay ahead of the curve. Our portfolio license ensures our customers have the innovation agility they need to do just that.

- Includes access to all innovations on our Technology Roadmap
- Helps licensees adopt relevant new technologies more quickly
- Empowers licensees to focus their capital and people resources on their areas of strength
- Delivers significant cost savings

TECHNOLOGY TRANSFER

Ensures implementation excellence.

Manufacturing high-quality battery cells at scale is both an art and a science. Our extensive know-how in the technology and nuances of materials, processes, and equipment ensures our licensees' facilities come on-line quickly to manufacture our superior cell technology.

WE LEVERAGE ACE'S EXTENSIVE EXPERTISE AND KNOW-HOW TO:

- Assess and optimize equipment and processes in existing factories
- Assist with ordering equipment in the case of new factories
- Provide the supply chain and industry partnerships
- Start up licensee's equipment
- Train manufacturing staff
- Document cell manufacturing process
- Ensure quality, scaled production

ADVANCED LFP

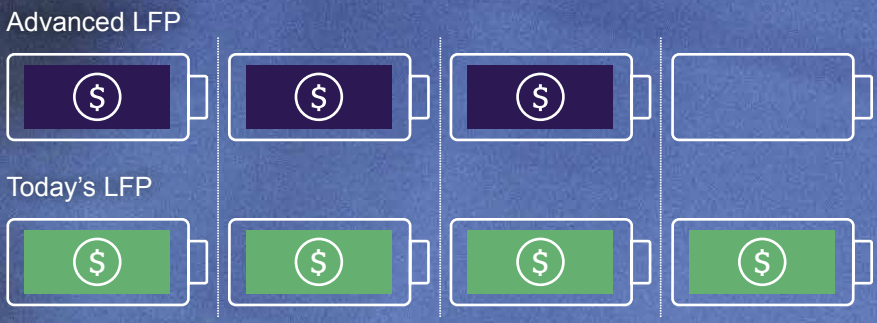
Driving to set new standards for LFP.

While LFP batteries have existed for decades, ACE has engineered a new LFP-based chemistry that results in **significantly higher energy density while maintaining the highest safety standards.** Relatively low energy density versus NMC or NCA has discouraged a switch to LFP in the past — in spite of the safety concerns that come with NMC/NCA. ACE's Advanced LFP changes that. With an energy density of 205 Wh/kg in a safe, low-cost chemistry, Advanced LFP is an excellent alternative to NMC and NCA.

Better performance and better value.

Advanced LFP costs the same to produce as today's LFP, but has 30% higher energy density. **That means greater value in one of two ways:**

25% LOWER CELL COSTS / SAME RANGE



HIGHER ENERGY DENSITY
205 Wh/kg, delivering up to 30% higher energy density than existing LFP cells on the market.

LONGER CYCLE LIFE
5,500 charge–discharge cycles, ensuring the battery outlasts the life of the vehicle.

UNSURPASSED SAFETY
Safe materials that significantly reduce the possibility of battery fires or explosions.

COST EFFECTIVE
Significantly more cost-effective versus NMC and NCA chemistries that rely on nickel and cobalt.

DROP-IN REPLACEMENT
Can be manufactured on standard equipment in any cylindrical, prismatic, or pouch cell format.

ESG FRIENDLY
25% lower carbon footprint, engineered to be fully recyclable, conflict-free raw materials.

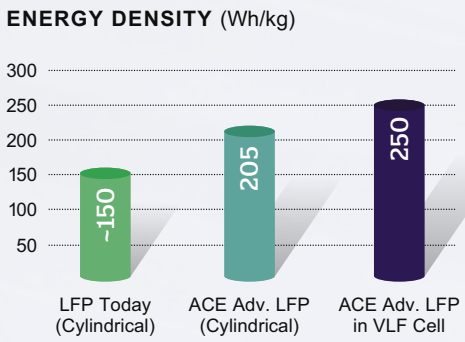
30% GREATER RANGE / SAME COST

VLF CELL

Developing innovative cell formats.

ACE has developed a one-meter Very Large Format (VLF) prismatic cell with the goal of increasing vehicle range while reducing costs. This cell-to-pack VLF solution is optimized for electric vehicle applications in two important ways:

1. **Maximizing energy density for significantly greater vehicle range capabilities.**
   The highly efficient architecture of the VLF cell will boost the energy density from about 205 Wh/kg found in a cylindrical cell using Advanced LFP to 250 Wh/kg. This is about the same as the energy density of NMC/NCA, but in a much safer, more cost-effective cell.



2. **Simplifying the battery system.**
   Reducing the size, weight, and complexity of the battery system will lower costs and provide more design flexibility. Today's EVs contain thousands of small cells assembled into modules, which are then housed in a battery pack. ACE VLF cells are designed to be integrated directly into the battery pack, eliminating the need for module components. This is estimated to reduce pack costs by about $14/kWh, helping to make EVs more affordable.

THE VLF CELL DESIGN can be customized to meet the requirements of any EV.

ABOUT ACE'S FOUNDER

ACE was founded by battery industry veteran John Kaufman in 2021. John and his accomplished leadership team bring the necessary experience and know-how to develop advanced battery technologies and successfully transfer those technologies to licensees.

Please contact us to learn more about how ACE's technologies can help you meet your EV development goals.

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