

Alternative Power Report

September 18, 2024

News on Alternative Power Sources



www.powersys.com | +1-651-905-8400 | info@powersys.com

Moving from ICE To Alternative Power

As manufacturers continue to shift their equipment production from ICE to alternative power sources, they need the latest information. That's why analysts at Power Systems Research continue to revise our global data and forecasts to provide the freshest picture available.

Fast Charging Gets Faster in LFP Batteries

Greely Adds Fast Charging Batteries To Its Vehicles

By *Guy Youngs*, Forecast & Adoption Lead



Zeekr, an electric vehicle (EV) maker within the Geely Auto group, has integrated its self-developed fast-charging battery technology, based on lithium-iron-phosphate (LFP) chemistry, into its latest vehicles

According to the company, the 75 kWh battery pack supports '5.5C ultra-fast charging,' enabling vehicles to charge from 10% to 80% in just 10.5 minutes using 800V charging at Zeekr's proprietary stations.

Source: *PV Magazine* [Read The Article](#)

PSR Analysis: Until this, all Lithium-ion batteries using NMC cathodes were faster than LFP batteries. This reverses that and means that this ultra fast charging together with safer LFP chemistry could eventually replace standard NMC battery chemistries



Editor's Note: This monthly report includes news and analysis about EV and alternative power sources such as batteries and fuel cells from analysts at Power Systems Research.

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New power source installations vary across industry segments. Contact PSR for data on your specific application needs.

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Revolutionary Battery Made from Stone Could Transform Electric Cars

Researchers at the Technical University of Denmark (DTU) have developed a super-ionic material based on potassium silicate, a compound extracted from ordinary rocks. This innovation could potentially revolutionize the way we power electric cars.

Potassium silicate, the key material in this new battery technology, is abundantly available in the earth's crust. Potassium silicate is also resilient to air and moisture, allowing it to be easily integrated into batteries as a thin layer without the need for expensive protective measures.

Source: [MSN Read The Article](#)

PSR Analysis: We continue to see many new innovations in battery technology which show a lot of promise. This one has the potential to be safer and cheaper, but we are far from commercialization so this innovation is a long way off.

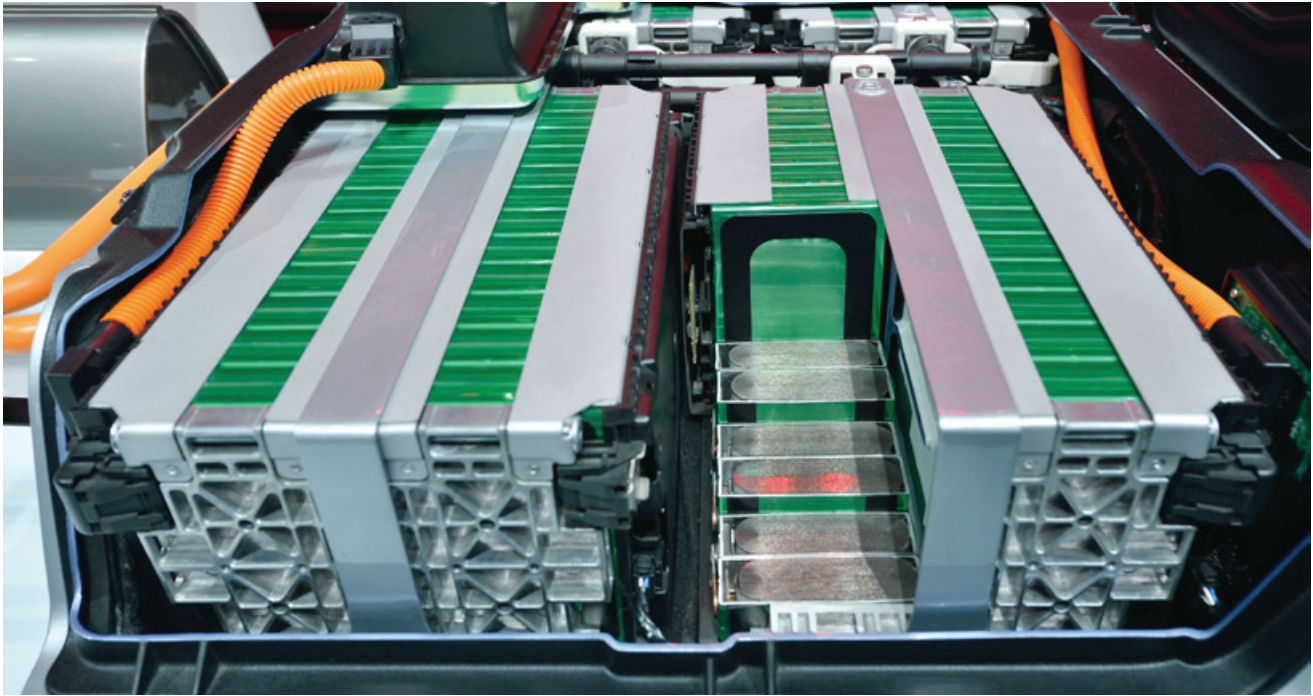
Is New Silicon EV Battery From CalTech Spinoff The Best Thing Ever?

A spinoff from CalTech called Sienza Energy has come up with a new silicon EV battery that does away with cobalt. The secret is a nanoscale structure that resembles a plastic badminton birdie but delivers the triple threat of cost, performance, and safety

Conventional lithium-ion batteries deploy millions of micron-sized particles in their electrodes. In contrast, the Sienza EV battery boots the scale into nano-territory with billions of structures, resulting in a surface area 100 times that of conventional batteries. In addition to more efficient heat dissipation, the expanded surface area is a key factor in the improved performance of the new batter

Source: [CleanTechnica Read The Article](#)

PSR Analysis: As a mineral, cobalt has some dark undertones with much concern being raised about the use



of child labor in its mining, and since its cost is high, any move away from cobalt is appreciated.

China's Restrictions on Antimony Could Expand Shortfall

China plans to introduce restrictions on antimony exports, a move that could lead to another flashpoint with the West over control of critical minerals. Antimony is used in lead-acid batteries, as well as in solar panels and flame retardant applications. The US Department of the Interior has designated it a critical mineral. It also is essential for armor-piercing ammunition, infrared sensors and precision optics.

Analysts estimate the market was already facing a 10,000-ton shortfall before China's restrictions. The US is critically dependent on China for antimony. It consumed 22,000 tons of antimony products in 2023. Domestic production amounted to just 4,000 tons. This mostly came from antimonial lead recovered from used lead-acid batteries

Source: *Bestmag* [Read The Article](#)

PSR Analysis: There are a lot of minerals that are now being brought into sharp focus as the US looks at its critical minerals and finds that it is more reliant on other nations than previously thought.

Volvo Backtracks on 100% EV Pledge

Volvo is scaling back on its pledge of 100% EV by 2030. The company said stronger government support is needed to advance the transition. Volvo was one of the first automakers to set a 100% EV sales goal by 2030. The announcement was made three years ago in March 2021.

The plan called for selling only fully electric cars while phasing out "any car in its global portfolio with an internal combustion engine, including hybrids."

Source: *Electrek* [Read The Article](#)

PSR Analysis: There have been a few news articles about the scaling back of EV plans but we need to view this in context. Yes, the plans are being scaled back, but this is at a time when gasoline/diesel car sales are dropping back even more than EV sales, so while it's not good news, it's not a disaster (as some pundits would claim).

Volkswagen Considers Closing Factories In Germany

According to Bloomberg, VW is considering closing some factories in Germany for the first time in its 87-year history, and this move risks a feud with the very powerful auto unions. Europe's auto industry has had years of ignoring overcapacity and slumping competitiveness.

The reasons are clear — Europe's efforts to compete with Chinese rivals and Tesla in electric cars are faltering. The proposed factory closures are intended to save the company about \$10 billion in the near future.

Source: *CleanTechnica* [Read The Article](#)

PSR Analysis: Given that any car can be manufactured in China for less than half what it costs to do so in America or Europe, this was pretty much inevitable, so VW is losing market share everywhere, especially in China as are other Legacy makers and it is hitting their bottom lines. That must inevitably have repercussions and here they come. For a long time now China has worked hard at manufacturing EV, while Europe did nothing.

Sodium-Ion Battery News From The US and China

Despite the widespread use of lithium in batteries, this approach has several drawbacks. The price can gyrate erratically, making it hard for customers to know what lithium-ion batteries will cost in the future, extracting lithium can cause environmental and social harm and China has taken control of much of the lithium supply chain around the world, making it more difficult for battery makers outside of China to control their supply chains

Sodium has none of these disadvantages. It is abundant, found everywhere around the world, and cheap. Sodium-ion batteries do not perform as well as the best lithium-ion batteries, but they have some advantages over their lithium-based cousins. Their performance does not deteriorate as much as lithium-ion batteries do in cold temperatures, and they have a greatly diminished risk of fire

Source: *CleanTechnica* [Read The Article](#)

PSR Analysis: Battery innovation is, at the moment, constant so this article gives some information about some of the latest moves with Sodium batteries.

New Ways To Feed World Lithium Habit

Lithium demand is rising and pricing agency Benchmark Mineral Intelligence (BMI) expects a million-ton lithium materials market in 2024 and a compound annual growth rate of 15% to 2033. Analysts including BMI anticipate the onset of a lithium shortage around 2029 amid



environmental and political concerns about the required expansion of lithium mining and processing and their concentration in a small number of countries

Lithium is largely produced via open-air evaporation of brine – in South America's "lithium triangle" – or from hard rock mining, mostly in Australia.

Source: *PV Magazine* [Read The Article](#)

PSR Analysis: Hard rock mining relies on diesel-powered mining equipment and high-temperature processing and is energy intensive while brine concentration and processing via evaporation is water-intensive (and in arid regions), prompting concerns about the overuse of aquifers. The resulting opposition to projects ensures that the lithium mining industry is slow to react to demand fluctuation, so any process that speeds this up, is a plus

A Final Note

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CONTACT US

Purchasing and Inquiries

Headquarters

St. Paul, USA

+1 651 905 8400

info@powersys.com

Detroit, USA

+1 734 545 0474

infode@powersys.com

Beijing, China

+86 10 5737 9201

infocn@powersys.com

Campinas, Brazil

+55 19 3305 5657

infos@powersys.com

European Headquarters

Brussels, Belgium

+32 2 643 2828

info@powersys.com

Frankfurt, Germany

+49 160 1807 044

info@powersys.com

Pune, India

info@powersys.com

Tokyo, Japan

+81 90 9139 0934

info@powersys.com

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