Alternative Power Report

June 12, 2025

News on Alternative Power Sources

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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.

Will Hydrogen Fuel Cell Trucks Follow Car Storyline?

Hydrogen Cars May Be Different Story

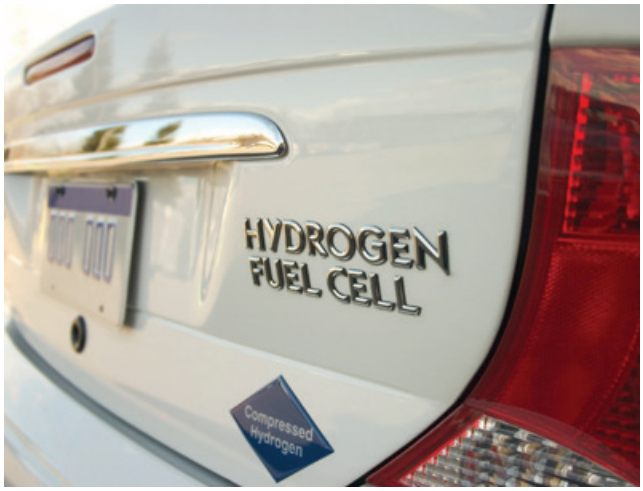
By Guy Youngs, Forecast & Adoption Lead

A decade ago, many people believed they were the future, not battery-electric cars. The debates raged and it was common to have press releases, auto executive statements, and debates about the future of hydrogen-powered cars.

In the last decade or so, the market apparently has decided that hydrogen-powered cars do not make sense, and they can't compete in the market as a result. Despite this situation, there are still plenty of discussions, trials, and vehicle development programs for hydrogen-powered trucks.

In theory, hydrogen can compete in the truck market, but in practice, it's an entirely different matter. Battery technology keeps improving rapidly, and solutions for battery-electric trucks are becoming clear. If battery costs keep coming down — as expected — and proper charging hubs for heavy-duty electric vehicles get developed, battery-electric trucks seem set to win the day.

Source: *CleanTechnica* **Read The Article**



PSR Analysis: The problems surrounding hydrogen have yet to be resolved (supply chain, leakage problems, shipping hydrogen around the world, the high cost of hydrogen powertrains, limited hydrogen fueling industry and infrastructure). Meanwhile, BEV trucks are surging ahead in the race, and it's getting less and less likely that hydrogen will survive. **PSR**

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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IEA Global Outlook Shows U.S. Falling Behind On EVs

The U.S. had a robust policy in place to promote the adoption of electric cars, and it used all the tools conservatives say they like — carrots such as financial incentives instead of sticks such as mandates. But now, according to the IEA (International Energy Agency), USA is moving backwards while the rest of the world continues to move forward.

In its EV Global Outlook 2025 report, the IEA says that 20% of new cars sold worldwide in 2024 were electric, a definition that includes plug-in hybrids as well as battery-electric cars.

Prior to President Trump's election, it was predicting US EV sales would be nearly half of all new car sales by 2030. The IEA now expects battery-electric and plug-in hybrid vehicles to account for just 20% or so of US sales in 2030

Source: *CleanTechnica* **Read The Article**

PSR Analysis: The irony is that most of that money was scheduled under the IRA was to flow to Republican states, but now the jobs and tax revenues those funds would have made possible, are in danger of being lost. By the end of the current administration in the USA, they will be many years behind the rest of the world and may not be able to catch up. **PSR**

Critical Mineral Supplies for Clean Energy Concentrated in Few Countries

The world's sources of critical minerals are increasingly concentrated in just a few countries, most notably China, leaving the global economy vulnerable to supply cutoffs that could disrupt economies and hit consumers with higher prices, a report from International Energy Agency (IEA) has stated.

The report looked at the availability of minerals and metals that may be small in quantity but large in impact when it comes to shifting the economy away from fossil fuels toward electricity and renewable energy.

This critical mineral includes so-called "Rare Earths," a group of 17 metallic elements with unique properties that make them indispensable to modern technology. They're essential components in smartphones, electric cars, wind turbines, medical scanners and advanced defense systems. They're also needed in LEDs, lasers, glass production, steelmaking and petroleum refining. These materials include metals such as Lithium, Graphite, Copper, Titanium and Nickel.

Source: *MSN* **Read The Article**

PSR Analysis: With China dominating Rare Earths, many countries are just waking up to a potential bottleneck and the use of minerals in geo-political bargaining. Some analysts suggest that the USA's shortfall of some of these Rare Earths, might be the reason behind President Trump's 90 day pause on tariffs and the subsequent willingness to negotiate on this subject. According to the IEA, the golden rule relating to critical minerals is diversity, something that doesn't currently exist. **PSR**

Sodium Batteries: Yet Another Sign EVs Are Here To Stay

The rising demand for zero-emission mobility goes beyond the nice idea of preventing a catastrophic climate crisis. EVs are a better fit for the connected, electrified lifestyle of the 21st century; they offer more opportunities for convenience, they are more useful for weathering power outages and climate-connected emergencies, and they are more adaptable to the needs of fleet managers, among other advantages.

However, while some researchers note that "salt batteries" are not quite ready for prime time, other stakeholders — including industry leader CATL — are already laying plans for mass production. Last month, CATL also burned up the Internet when it announced a suite of two sodium-ion batteries ready for full volume production by the end of this year.

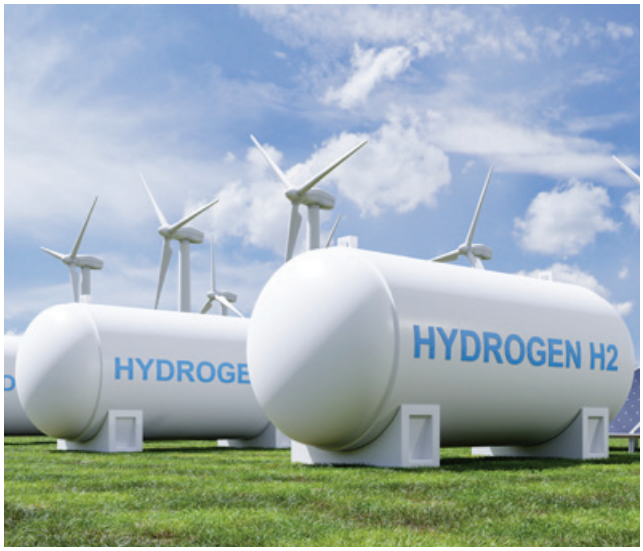
The hero of the EV revolution, lithium-ion battery technology, is beginning to make room for new battery chemistries that offer a more abundant and accessible supply chain, reduce the reliance on toxic inputs, and achieve both cost and safety improvements.

Source: *CleanTechnica* **Read The Article**

PSR Analysis: The new sodium-ion battery is not designed to compete directly against NMC Li-ion in all EVs as its energy density is comparable to LFP Lithium ion batteries, with an energy density of 175Wh/kg. While the battery will need some tweaks, it does support superfast charging and has a good battery life too. There will be a cost advantage over Lithium ion batteries and possibly most importantly sodium is not a critical mineral. **PSR**

GM Halts Hydrogen Fuel Cell Plant Amid Market Uncertainty

In a move that signals a shift in strategy, General Motors (GM) has pressed pause on its highly anticipated hydrogen fuel cell manufacturing facility in Detroit, MI. First announced in September 2024, the $55 million factory was set to breathe new life into the old State Fairgrounds site and create roughly 300 skilled jobs in the process. Spanning nearly 292,500 square feet, the facility was expected to become a major player in GM's push toward alternative fuels.



In May 2025, those plans were officially put on hold.

Source: *Hydrogen Fuel News* **Read The Article**

PSR Analysis: Several questions arise from this article: Is this a shift in GM strategy away from hydrogen? Maybe, but GM is describing this as a pause and not an end to this program.

Is this caused by President Trump's strategy against alternative power? Again, maybe, but it comes down to uncertainty and GM are now taking a closer look at how realistic it is to go big on hydrogen right now. **PSR**

Lithium Metal Extraction Study Claims to be More Efficient Than Conventional Method

Researchers at Penn State University claim to have developed a high-efficiency method for extracting lithium metal from the mineral spodumene, which contains lithium aluminum silicate.

This patent-pending method is said to use less water and reduce energy consumption.

The researchers converted the spodumene to water-soluble phase using a relatively low temperature roasting using sodium hydroxide. This roasting process was in two-stages at 325°C and water leaching was done at room temperature, which the researchers claim extracted over 99% of the lithium

Source: *BEST Magazine* **Read The Article**

PSR Analysis: Normal Lithium extraction uses much more energy and much more water to achieve an 88% extraction rate, so any improvement in this process will deliver more lithium, and at less cost. Potentially, this is a big win by extending the amount of lithium available, and it reduces the amount of waste that needs to be dealt with. **PSR**

BMW Testing EVs with All-Solid-State Batteries

The first BMW EVs powered by all-solid-state batteries are now on the road for testing. BMW used an i7 to test the "holy grail" of EV battery tech, promising longer driving range at a lower cost.

BMW and Solid Power have been working together since 2022 to advance the new EV battery tech. In December 2022, BMW revealed plans to license Solid Power's tech for a new solid cell prototype line at its Cell Manufacturing Competence Center (CMCC) in Parsdorf, Germany.

BMW follows Mercedes-Benz, which announced in February it had put "the first car powered by a lithium-metal solid-state battery on the road" through its partnership with US-based Factorial Energy. Mercedes used a modified EQS, fitted with solid-state batteries. With an expected 40% weight savings compared to current Li-ion batteries, Factorial aims to unlock over 600 miles of driving range.

Source: *Electrek* **Read The Article**

PSR Analysis: German automakers are not the only ones advancing this promising new battery tech. Global battery leaders CATL and BYD are also expected to launch EVs with all-solid-state batteries in the next few years. BYD's battery business expects its first EVs with all-solid-state batteries to arrive in 2027. We can expect that testing will take several years before we can see this technology in production vehicles. **PSR**

Changan Solid-State Battery Will Unlock Up To 1500 Kilometers Of Range

According to CnEVPost, Chinese automaker Changan claims it has developed a solid-state battery that will allow electric cars to travel up to 1500 kilometers without needing to be recharged. That's a massive 932 miles.

Changan says its batteries will be in production by the end of this year, with verification and calibration procedures taking place next year. By 2027, it expects production cars using its solid-state batteries to be on the road in China.

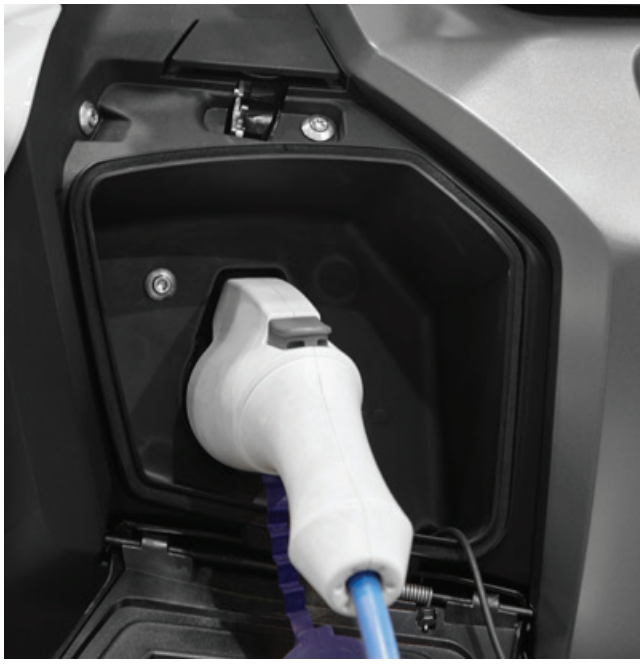
The Changan solid-state battery is said to have an energy density of up to 400 Wh/kg compared to the best lithium-ion batteries which have an energy density of 350 Wh/kg, but they are expensive. Once fully developed, solid-state batteries are expected to be capable of energy densities as high as 500 Wh/kg

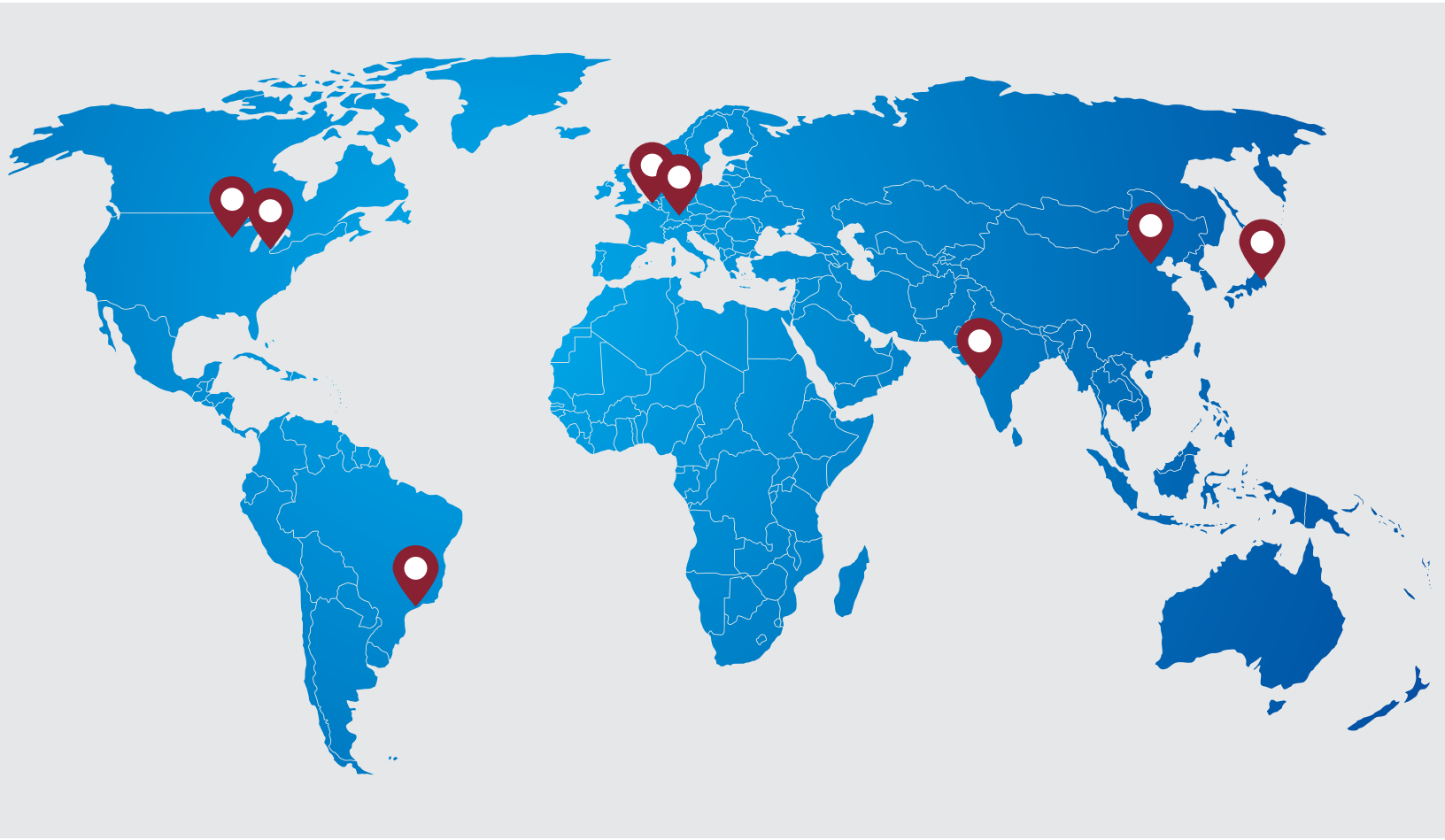
Source: *CleanTechnica* **Read The Article**

PSR Analysis: On the face of things, this is great news because it also eliminates the risk of thermal runaway. However, we must remember that the detail is important and if this uses the CLTC method of calculating range (rather than the WLTP method) it could be more hype than substance. **PSR**

A Final Note

A British company harnessing wind power to turn oil tankers green – **Click Here**…Tesla (TSLA) keeps getting worse in Europe despite electric car sales surging – **Click Here**… Can von der Leyen save Europe's car industry from 'The Slow Agony of Decline'? – **Click Here**…Trump's Big, Beautiful Bill accelerates hydrogen economy's inevitable fall – **Click Here**. **PSR**





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