

Alternative Power Report

Sept. 13, 2026

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.

Geely Prepares Revolutionary 500 Wh/kg Solid-State EV Battery *New Battery Could Beat Diesel*

By *Guy Youngs*, Forecast & Adoption Lead



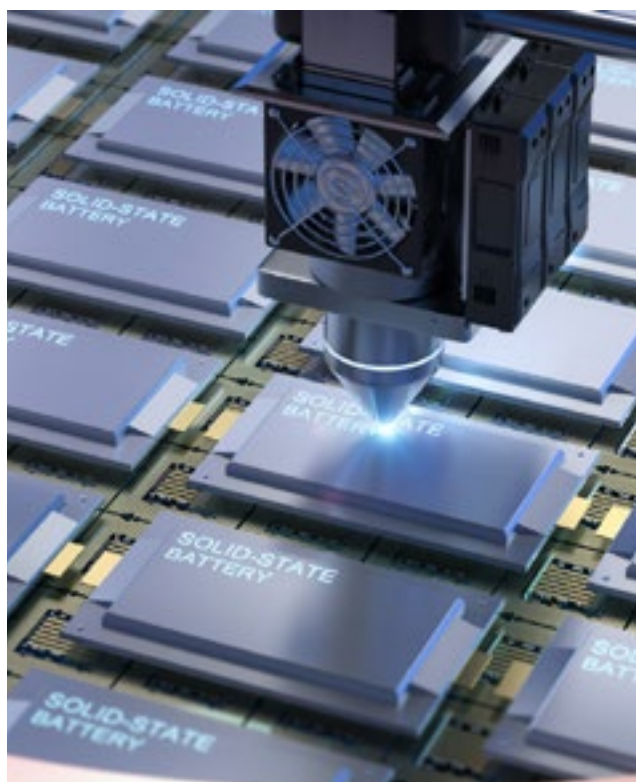
Geely's next-generation solid-state EV battery, which is currently going through real-world testing ahead of a rollout in 2027, could reach an energy density of up to 500 Wh/kg.

This means that Geely's cells could hold roughly twice the energy per kilogram of the best lithium-ion battery packs shipping in EVs today. The best high-nickel NMC cells in production have about 250 to 300 Wh/kg while Tesla's 4680 cell sits near 245 Wh/kg. LFP cells are lower and peak at around 200 Wh/kg.

Large battery packs can weigh 100kg, so being able to either double the range (for the same weight) or maintain the range (at half the battery weight) is a tremendous achievement.

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

PSR Analysis: There is, however, a small problem. Pilot deployment in 2027 is not the same as cars on roads in



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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2027, and Geely hasn't put a date on when this will happen. When it does happen however, it could be a game changer.

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Irish Government Launches Plan To Encourage Development of Data Centers

The Irish government has announced a new plan to address barriers affecting data centers (such as grid connection delays and local grid pressures), particularly around energy use.

The Large Energy User Action Plan (Leap) aims to see the location of new businesses with large demands better planned so that they are constructed near renewable energy sources. Under the Large Energy User Action Plan, any large energy users (10 MW-plus), such as data centers must provide at least 80% of their energy demand through new onsite renewable energy generation and storage.

Source: *Breaking News* [Read The Article](#)

PSR Analysis: The 80% rule means that data centers sited near renewable energy sites can bypass potential grid connection delays (which can take several years) and connect directly to the renewable site. It also supports decarbonization efforts and relieves pressure on local grids. However, it does mean fewer backup gen-sets may be sold if the data center supports the renewable energy with batteries. **PSR**

Next-gen Zinc-Iodine Batteries Can Charge in 3 Minutes

Lithium-ion batteries have been around for a while now (in all their derivatives, NMC, LFP, LTO, etc.) but we are now seeing the next generation of battery technologies starting to appear. These include Lithium Sulphur, Sodium Ion and aqueous zinc-iodine batteries (AZIBs).

Researchers from Flinders University in Australia have published details of the latest steps in zinc-iodine technology. Prototype batteries can manage more than 60,000 recharge and discharge cycles, with recharges in just three minutes.

As the batteries are water-based, they don't come with the same potential risk of explosion and fire as standard (NMC)

lithium-ion batteries do. However, these batteries tend to deteriorate as they're used because of the chemical reactions happening inside.

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

PSR Analysis: The usual caveats apply with any new battery technology, in that you have to fully develop it and that it must be commercialized. However, one thing is clear, this battery technology is more suited to large scale uses.

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Lithium Pre-doping Technology May Raise Energy Density and Lower Cost

Asahi Kasei, a diversified global company, says it has developed a novel pre-doping technology for high-voltage lithium-ion batteries with silicon-based anodes.

Typically, during the first charge–discharge cycle, silicon rich cells see a reduction in permanent capacity and this technology enables lithium carbonate to serve as an additional lithium source at lower voltages. Lithium carbonate is a precursor to the lithium used in Lithium batteries. Previously, the only way to reduce this loss was to use greater amounts of cathode active material, which in turn leads to higher material use and higher costs.

Internal tests with an NMC (nickel-manganese-cobalt) cell having an anode of 90% graphite and 10% SiO showed a 10% increase in energy density and improvements in costs v's alternative methods of reducing this problem.

Source: *Clean Technica* [Read The Article](#)

PSR Analysis: Pre-doping seems to be an efficient way of gaining some energy density in Lithium cells that use silicon as part of the anode, and the fact that it's cheaper than the alternative is a plus, too. **PSR**

Poland Created Hydrogen Bus Demand, but Polenergia Walked Away

The Polish experiments with hydrogen started off very well. Hydrogen advocates spent years telling governments what needed to be done: create real demand. Public subsidies helped put hydrogen buses into Polish cities, refueling infrastructure received support, and renewable-hydrogen projects were offered public money as well.

Subsidized buses would create hydrogen demand, demand would support refueling stations, stations would justify local hydrogen production. With enough production and infrastructure in place, a domestic low-carbon hydrogen industry could begin to emerge. In principle, it sounded logical and that it would work.

Polenergia, Poland's largest private energy group started off solidly. By October 2024, they had building permits, and eight electrolyzer stacks had completed factory acceptance testing. In hydrogen- terms, that was at an advanced state.

Fast forward one year and Polenergia decided in January 2025 that it could not conclude the agreement. The company cited legal issues associated with the tender and the risk that it would not be able to deliver hydrogen on schedule. This was not simply a declaration that hydrogen cost too much, Polenergia's subsequent corporate strategy called for a gradual withdrawal from hydrogen transportation.

Source: *Clean Technica* [Read The Article](#)

PSR Analysis: There are a lot of views as to why this key project has failed, ranging from the creation of a hydrogen system that would always fail because it wasn't running 24/7, to creating a demand through subsidy. Either way, it's another failed hydrogen experiment, which seems to be the way of things for hydrogen at the moment. **PSR**

Toyota Continues Work On Fluoride-Ion EV Battery

Toyota seemingly struggled to make up its mind about the EV market and has been roundly criticized for its endless stop-start-stop approach to the electric market, but recently the company has begun to make up for lost time. The automaker launched its electric bZ and followed this up with the all-electric C-HR. Other legacy car makers have introduced many more electric models, so Toyota has been criticized for a lot of talk, but little action.

In the meantime, Toyota has been looking to improve upon lithium-ion batteries. taken a crack at solid state batteries, and now it is ramping up its interest in the fluoride-ion formula. This was first mentioned in 2020, when Toyota described its partnership with Kyoto University.



However, the anode for the new batteries is composed of fluorine, copper, and cobalt. Meanwhile most battery manufacturers and EV makers are striving to eliminate cobalt from their batteries as a key cost saver.

Source: *Clean Technica* [Read The Article](#)

PSR Analysis: Toyota is still sending very mixed signals to the marketplace regarding EVs. However it should be noted that fluoride use in batteries does have great potential because the key characteristic of fluoride is its high electronegativity. (Electronegativity describes how well an atom attracts electrons) and this helps it to have a high energy density. **PSR**

Future EVs Could Get More Range From This Tiny TI Sensor

Texas Instruments has developed a new sensor to fit with the traction inverter. This is the part of an EV that controls how electricity moves from the battery to the motor. The inverter is the motor's power manager, and it needs to know exactly how much electricity is flowing so it can deliver the right amount of power at the right moment.

Sounds simple, but its importance is quite significant. Poor or inaccurate measurements at the inverter can cause tiny fluctuations in power, and these are known as torque ripple.

Torque ripple can make acceleration rougher, and the EV can lose some energy as extra heat and motor noise.

EV powertrains need extremely precise measurements, and the possible benefits here include smoother acceleration, a quieter motor, improved efficiency, and potentially greater range from the same battery.

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

PSR Analysis: The article doesn't give potential levels of range improvement because so many other factors are involved, but other articles have noted that it could be as much as 5%. Even if it is only a 10th of that, there is good potential for future EVs. **PSR**

New South Wales Announces Policy Amid Data Center Growth

Recent news articles are talking about a push back against data centers, and this appears to be a global phenomenon with push back occurring in USA, Ireland, UK, Denmark and Australia, among others. The pushback is not against data centers per se, but rather against the impact they have on the local water supply and the power demand they place on the local grid.

In New South Wales, Australia, a new NSW Data Center Policy Framework, has been announced by the state government. It will govern the rapid expansion of data centers, with developers expected to contribute to the energy and water infrastructure their projects demand.

This comes after Prime Minister Anthony Albanese declared



imminent regulations for large-scale AI data centers in a speech on July 15. This will see new environmental, energy and water benchmarks alongside obligations for community consultation and infrastructure contributions introduced for all new data centers.

Source: *Architechure, AU* [Read The Article](#)

PSR Analysis: New projects will be required to meet six principles, including world-class environmental and efficiency standards, funding additional energy and water supply, improving local infrastructure and amenity, and investing in skills and future industries. This may slow down data center growth and therefore have an impact on the sales of the large scale engines typically use as backup.

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A Final Note

Sodium-Ion Batteries for the win! – [Click Here...](#)

Delaware Governor signs first-of-its-kind bill to power

data centers with clean energy - [Click Here...](#) **350-ton**

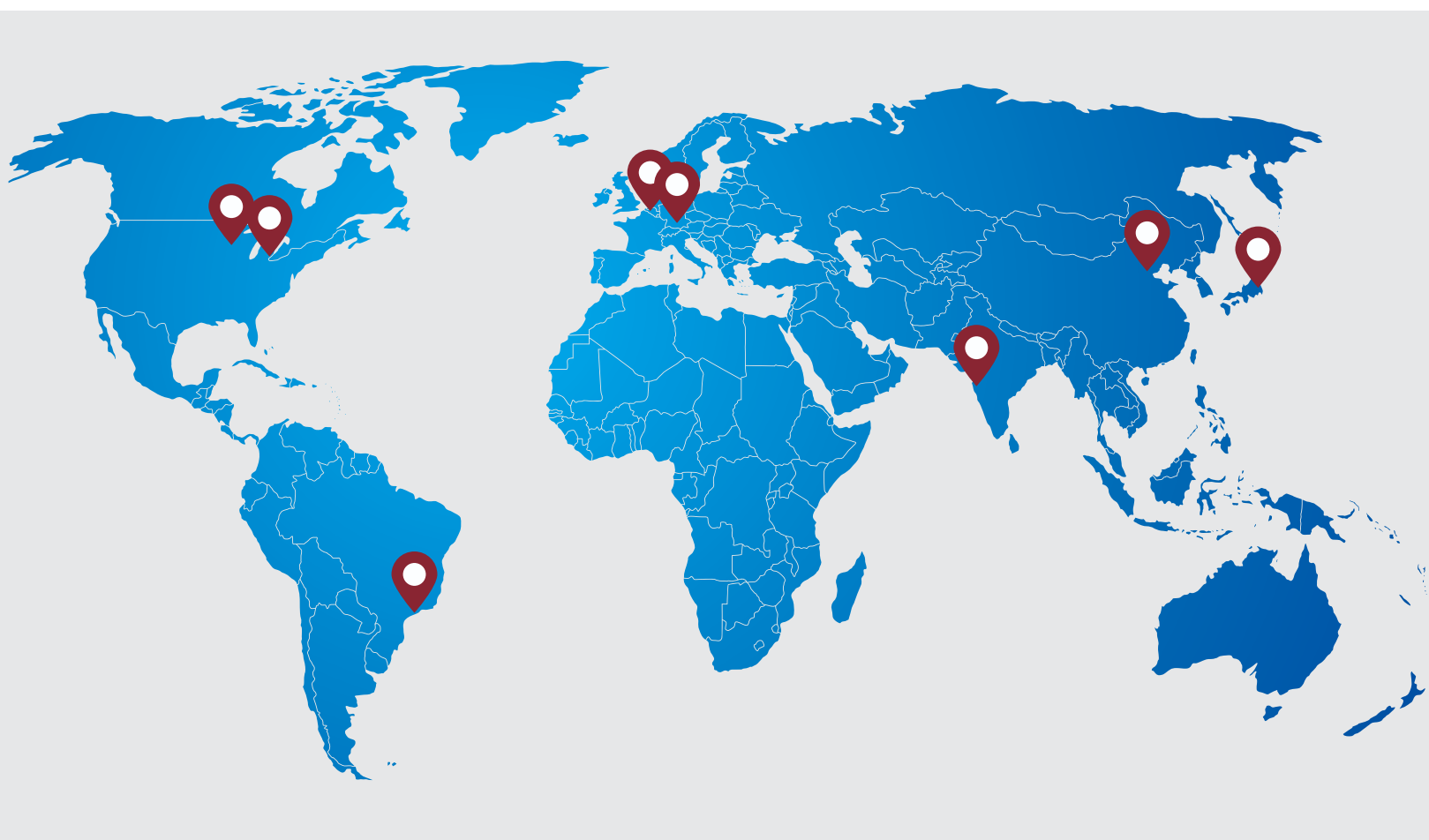
Longking ZL230E is the biggest, baddest battery mining

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