Alternative Power Report

December 9, 2025

News on Alternative Power Sources

Power Systems Research
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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.

EV Sales Have Not Fallen or Slumped, Despite Some Reports

EV sales continue to rise, but at a slower rate than in previous years.

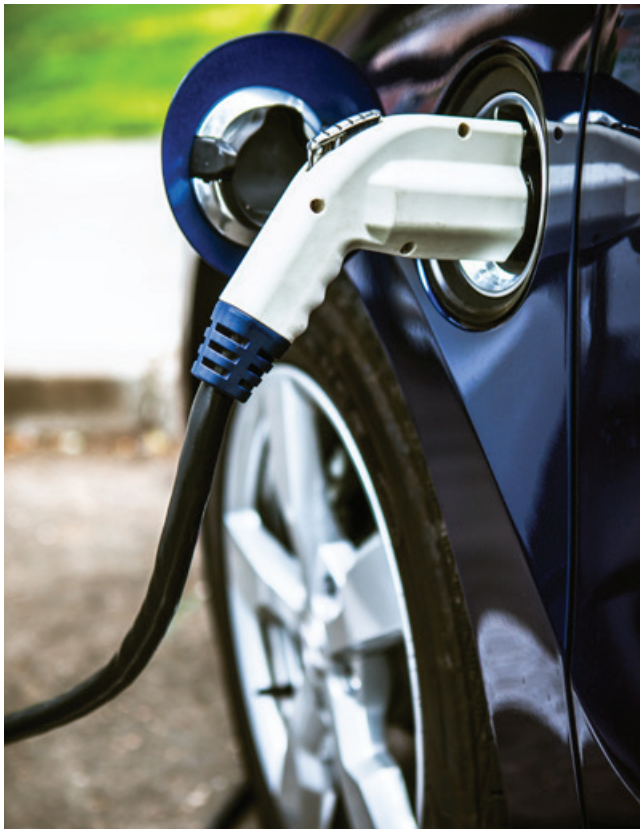
By Guy Youngs, Forecast & Adoption Lead

Over the course of the last two years or so, sales of battery electric vehicles, while continuing to grow, have posted lower year-over-year percentage growth rates than they had in years prior. EV sales used to grow at 50%+ per year, but for the last couple years, they have grown closer to about 25% per year.

Instead of the perpetual 50% CAGR that had been optimistically expected, we have seen a global EV sales growth rate of 23% in the first 10 months of this year, according to a report released by Rho Motion (recently acquired by Benchmark Mineral Intelligence). That includes a +32% bump in Europe, +22% bump in China, +4% in North America, and a big +48% bump in the "rest of the world."

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

PSR Analysis: Apart from correctly the false narrative, what is interesting is that while all the focus has been on EV volumes supposedly declining, in reality, it's petrol powered vehicle volumes which are declining in real terms.



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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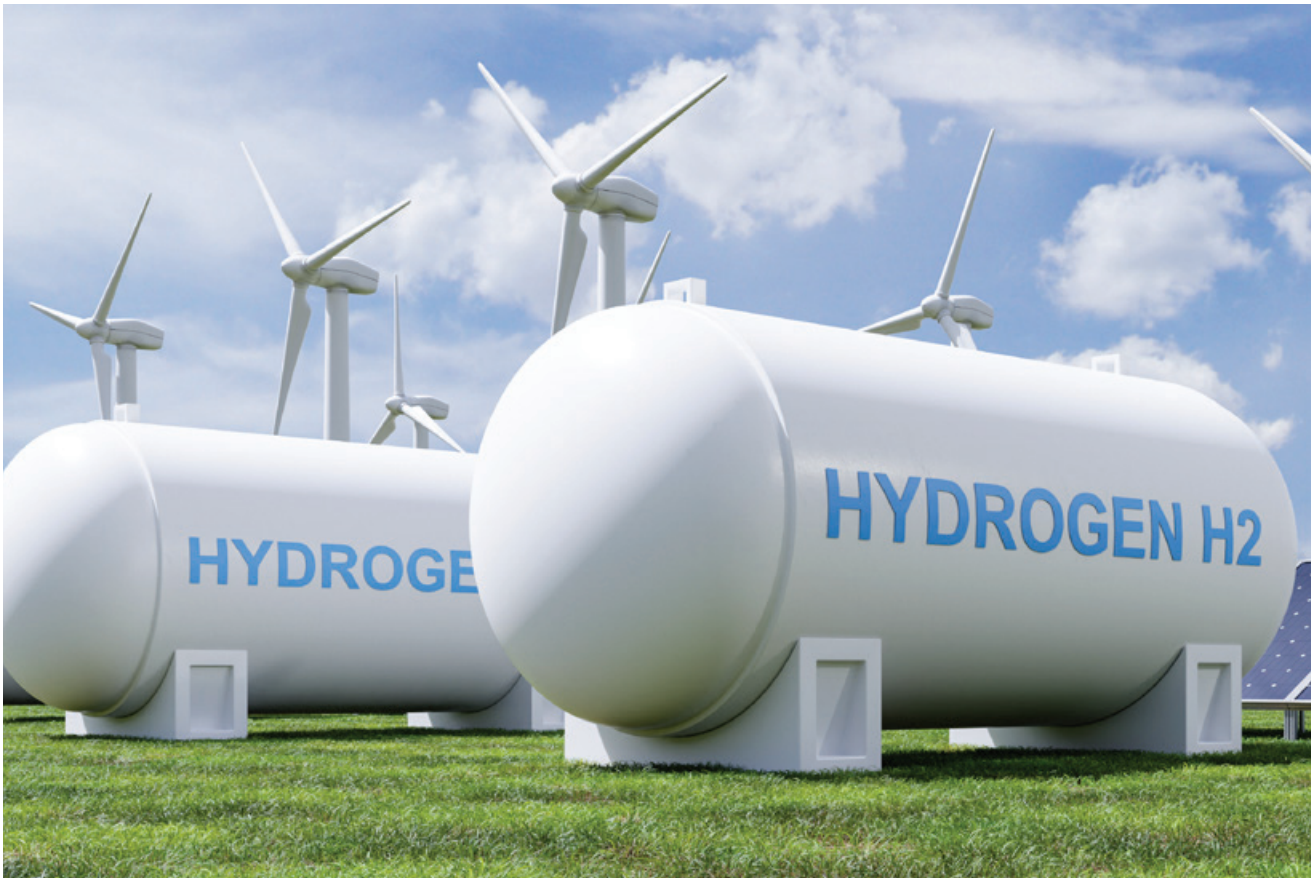


What 2,000 Projects Reveal About Hydrogen's Climate Value

A major study in *Nature Energy*, "Global greenhouse gas emissions mitigation potential of existing and planned hydrogen projects," by Terlouw et al, has done something rare in the hydrogen hype bubble.

It has gathered thousands of real hydrogen projects around the world, run full life-cycle assessments on them, and drawn clear boundaries between what helps and what wastes effort. It has confirmed what many have been arguing for years. Hydrogen makes sense in a few industrial applications but in few other applications.

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

PSR Analysis: The researchers' conclusion is straightforward. Hydrogen should be used where it replaces dirty hydrogen that already exists, not where electricity could do the job better. The hydrogen economy that exists today is dirty and old, not futuristic and green since most hydrogen used today is "grey" hydrogen and not produced using renewable energy. Because of this, if all hydrogen projects in the database were built, the world would still see only a small climate dividend.

Rechargeable Aluminum-ion Battery Breakthrough

Green Science Alliance has announced the development of a rechargeable aluminum-ion battery using an aqueous electrolyte, with the work earning a cover feature in the British academic journal Energy Advances

Aluminum-based batteries are considered promising candidates due to aluminum's abundance, recyclability and lower cost compared to lithium, which faces risks of scarcity and price volatility

The theoretical capacity of an aluminum-ion battery is approximately around 10 times higher than lithium-ion. Aluminum systems also offer safety advantages, being non-flammable. Green Science Alliance has previously explored aluminum air batteries, though commercialization proved difficult due to structural complexity and unstable reactions.

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

PSR Analysis: With a much higher capacity, Aluminum batteries have great potential as an alternative and possible replacement for Lithium batteries, but these still require more work to reach this goal.

Hydrogen's Seven Missing Pieces

Energy carriers succeed or fail because multiple conditions align at the same time. Hydrogen as a broad energy carrier needs many things to be true. The evidence shows that these conditions do not hold together.

The argument is about whether hydrogen can become a common energy carrier for heating, transport, and power. To reach that position, seven separate conditions must all be true at the same time. Each one matters, and the chain breaks when any one fails.

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

PSR Analysis: This article mentions seven steps that hydrogen must meet for hydrogen to be a broad energy carrier. These conditions do not align in the real world. Energy systems reward efficiency, scalability, low distribution cost, and strong end use demand. Electricity meets those tests. Hydrogen does not and until it does, it will remain a niche product.

Renewables and AI Rapidly Transforming World's Energy Future

The International Energy Agency (IEA) says renewables and AI are reshaping the world's energy future, and that transformation is happening faster than anyone expected. In its new "World Energy Outlook 2025," the IEA warns that energy security risks now stretch far beyond oil and gas.

Critical minerals essential to clean tech, defense, and AI have become the new fault lines in global supply chains. The IEA also states that energy has become a central focus of geopolitical power struggles, making it one of the defining economic and security challenges of our time

The IEA's annual "World Energy Outlook" explores three possible scenarios for the future, emphasizing that none are predictions. Instead, they are roadmaps that show what could happen depending on the choices governments and industries make on policy, technology, and investment.

Across every scenario, one theme stands out: electricity demand is surging faster than for any other form of energy. Electricity currently accounts for only about 20% of global energy use, yet it powers more than 40% of the global economy.

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

PSR Analysis: Driving this growth are data centers, AI, and electrification across transportation, heating, and manufacturing sectors and the IEA warns that grid expansion and storage aren't keeping up with this growth.

China's Diesel Trucks Shifting To Electric

China is replacing its diesel trucks with electric models faster than expected, potentially reshaping global fuel demand and the future of heavy transport. In 2020, nearly all new trucks in China ran on diesel. By the first half of 2025, battery-powered trucks accounted for 22% of new heavy truck sales, up from 9.2% in the same period in 2024, according to Commercial Vehicle World, a Beijing-based trucking data provider. The British research firm BMI forecasts electric trucks will reach nearly 46% of new sales this year and 60% next year

Heavy trucks carry the lifeblood of modern economies. They also contribute significantly to global emissions of carbon-dioxide: In 2019, road freight generated a third of all transport-related carbon emissions. Trucking has been considered hard to decarbonize since electric trucks with heavy batteries can carry less cargo than those using energy-dense diesel

Investments in charging infrastructure are also boosting demand for electric trucks. CATL said it plans a nationwide network of swap stations covering 150,000 kilometers (about 93,000 miles) out of China's 184,000 kms (about 114,000 miles) of expressway

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

PSR Analysis: While electric trucks are two to three times more expensive than diesel ones, their higher energy efficiency and lower costs can save owners an estimated 10% to 26% over the vehicle's lifetime, according to research by Chinese scientists.

Spain Doubles Down on Hydrogen Transport as Europe Steps Away

The European Commission's latest funding decision for alternative fuels infrastructure landed with a strange twist. On paper, the bloc approved support for 38 new hydrogen refueling stations spread across the continent.

In practice, almost all of them are going to a single country. Spain secured roughly four out of five stations in this round, which puts it at the center of an infrastructure buildout that is moving in the opposite direction from the rest of Europe

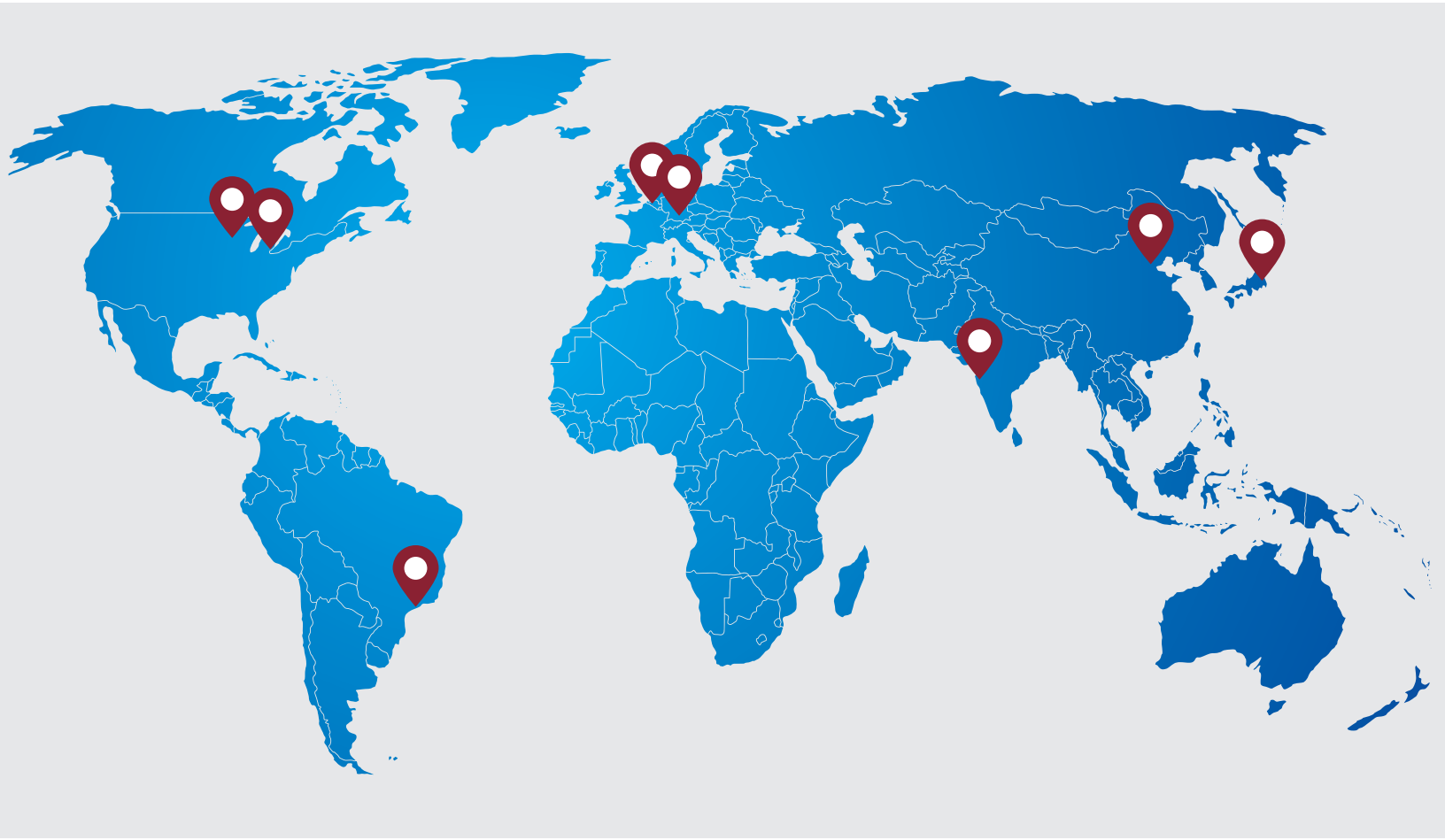
The scale of the EU funding approval is substantial, with more than US$ 700 million (€600 million) committed across a wide range of projects that genuinely strengthen Europe's transport decarbonization efforts

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

PSR Analysis: While Spain moves forward with hydrogen, the rest of Europe has moved away with Austria, Germany, Denmark, Norway and the United Kingdom, all shutting down stations rapidly. Even in France, only a limited number of stations remain operational and most are dependent on direct municipal support. The economics of hydrogen depend on high throughput, yet the vehicles have never arrived in sufficient numbers to justify the investment.

A Final Note

CATL Launches Factory Construction In Spain– **Click Here**…**Sodium-Ion** Battery Applications Grow- **Click Here**…**Biofuels:** Hope Or Hype?– **Click Here**…How Polish Cities Are Wasting EU Funds on **Hydrogen Buses** — Ignoring Energy Efficiency First- **Click Here**…**PSR**



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About Power Systems Research

Power Systems Research (PSR), established in 1976, is the leading source of data, analysis and forecasting on the global production of engines and engine-powered equipment, including class 8 vehicles. One of its databases, EnginLink,™ includes production figures down to the model level for OEMs in key market segments, such as commercial vehicles. PSR's global research network includes eight offices and stretches across 200 countries and four continents.

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