

Alternative Power Report

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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.

Ideanomics Successfully Tests Quick Power 500 kW Charger Charges Class 8 Electric Trucks in 15 Minutes

At 27%, the transport industry is the largest contributor to greenhouse gases in North America and Europe and within the transport sector, passenger cars contribute the most emissions followed by medium and heavy-duty trucks which contribute emissions at around 26% of the transportation industry. The move to reduce or eliminate emissions is one of the biggest priorities within the industry.

In a first, Ideanomics has announced that it successfully tested WAVE's 500kW ultra-fast wireless charger at the Port of Los Angeles, which can charge class 8 electric trucks in less than 15 minutes. Installation of the wireless electric chargers is already underway at the Port of LA, and Ideanomics expects the first chargers to be ready for use in 2023.

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

PSR Analysis: Most of the new EV trucks coming on to the market recently have relatively short ranges (compared to diesel) so this is significant news that could be a game changer, enabling heavy-duty electric trucks to run near continuously and making a huge impact on emissions levels. This technology can significantly improve the transportation industry, allowing customers to switch to zero-emission electric trucks without worrying about range. **PSR**



Editor's Note: This material has been reproduced from the Alternative Power Report, written by Guy Youngs which appeared in the October 2022 issue of PowerTALK News. The monthly feature includes news and analysis about EV and power sources such as batteries and fuel cells.

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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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Hydrogen Combustion Engines Cheaper than Diesel?

As companies seek to decarbonize their truck fleets, Ryze Hydrogen says that hydrogen combustion engines are the way to go— they are cleaner than diesel and they also make more economic sense, according to the company. Many companies today are looking at fuel cells in order to be able to use H₂ as a clean fuel, but there is a growing movement toward the use of hydrogen combustion engines.

Cummins and Westport are cited as examples, with Cummins having unveiled a medium-duty concept truck using an H₂-fueled internal combustion engine (ICE), which drew substantial attention in Germany at the IAA Transportation exhibition. Similarly, Westport Fuel Systems also unveiled its own HPDI hydrogen ICE engine for heavy duty vehicles earlier in September

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

PSR Analysis: With diesel engine architecture and engine manufacturing infrastructure already in place, this could have cost savings as the technology used by ICE is already familiar to engineers and mechanics worldwide, but the question about H₂ supply, still remains. Currently, there are encouraging levels of H₂ production and infrastructure investment. For example hydrogen technologies specialist AFC Energy has partnered with Spanish contractor Acciona, on the development of a hydrogen fuel cell technology, to provide H₂ to a construction site in Spain. Operations began at the road construction site, located north of Cadiz in mid-August. PSR

Super-Fast, Long-Life Aqueous Rechargeable Zinc Battery

An international group of researchers has demonstrated an aqueous zinc battery with excellent performance in terms of capacity, rate capability, specific energy, and output voltage. The battery is a hybrid supercapacitor-battery hybrid device which has demonstrated an unprecedented cycling stability of 99.2% capacity retention after 17,000 cycles at 100% depth of discharge.

This battery technology has been explored as a promising alternative due to its low cost, safety, environmental friendliness, and intrinsic non-flammable nature. However, their widespread adoption has been held back by their low

Coulombic efficiency (The Coulomb efficiency is usually used to describe the released battery capacity. It refers to the ratio of the discharge capacity after the full charge and the charging capacity of the same cycle) and the notorious dendritic growth (dendrites are basically whiskers of minerals that grow inside batteries and can cause the devices they're powering to lose power more quickly, short out, or in some instances, catch fire) at the zinc-based anodes, along with the fast capacity fading of the cathodes.

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

PSR Analysis: The demand for battery energy storage systems is constantly growing and with Lithium prices rocketing due to the anticipated supply shortfall, research continues unabated in the battery world. New battery technologies and chemistries seem to appear every month and the realization that not everything can hinge on single chemistry is growing. What makes this battery technology different is the capacity retention after so many cycles, but it remains to be seen if this can be commercialized over the next few years. Watch this space. PSR

Functional Miniature Hydrogen Fuel Cell Powers RC Truck

Hydrogen fuel cells are still a bit mysterious and likely are unattainable in the near future, but you can actually buy them right now, whether in vehicles or as parts. To demonstrate how practical they are, Alfonso Delgado Ollero built a miniature hydrogen fuel cell to power an RC truck.

The practical concerns of producing the hydrogen in the first place and the energy density being relatively low are relevant when talking about the future of the automotive industry, but according to Alfonso Delgado Ollero, they shouldn't prevent makers from experimenting with hydrogen fuel cells.

Source: *Arduino Team blog* [Read The Article](#)

PSR Analysis: On the face of it, this article may seem to be un-important, but the development of small scale fuel cells has tremendous potential for a huge number of small products. Limited specifications were given (this test bed uses a 12kw fuel cell) but given the large numbers of two-stroke and small four-stroke engines, the potential is huge, especially as moves are being made to reduce emissions produced by two-stroke engines. **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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