Alternative Power Report

April 17, 2023

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.

Global ICE Industry Cliff Is Here

Forecast Shows Decline in ICE-Powered Autos

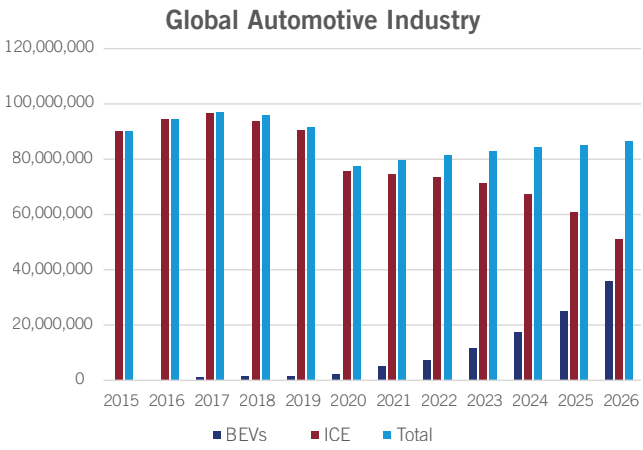
By Guy Youngs, Forecast & Adoption Lead

Guy Youngs

This article includes an important graph showing vehicle production numbers between 2015 and 2026, (projected for 2023–2026) which are based on historic BEV growth data and trends. Hybrids are lumped in with ICE cars and are shown as a preference over full BEVs which is clear in the data.

The chart shows that the overall auto industry has declined from its peak in 2017--due to the pandemic and chip shortage--before it started to recover in 2021. This chart/model is conservative in predicting industry growth at 1.6% y/y going forward and BEV growth at 50% for 2023 (average BEV growth was 57% for the past 7 years)

Putting numbers on it, the drop in ICE vehicle demand will mean 2.5 million fewer vehicles this year, 4 million fewer in 2024, 6.5 million fewer in 2025, and a whopping 9.5 million fewer in 2026 for a loss of ICE sales totaling 22 million vehicles over the next 4 years. This was calculated allowing for 1.6% growth overall for the industry.



The article then goes on to analyze which car companies are at risk.

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

PSR Analysis: This article is interesting because it's the first article to actually put a date on the cliff for ICE engines, to put volumes against the decline and also to suggest which car makers are more at risk. The year 2027 isn't very far away, either.

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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20-Year Changes in Top Construction OEM Hierarchy

A new animated chart shows the dramatic changes in the evolving hierarchy of the biggest construction equipment manufacturers over 20 years. The chart draws on data from International Construction's Yellow Table, which tracks the top 50 construction OEMs across the world. The data stretches back to 2003, and up until the latest version in 2022.

Source: *International Construction* **Read The Article**

PSR Analysis: This animated chart is especially interesting in that it allows you to track the growth of up to half a dozen big Chinese OEMs who have grown among the top companies.

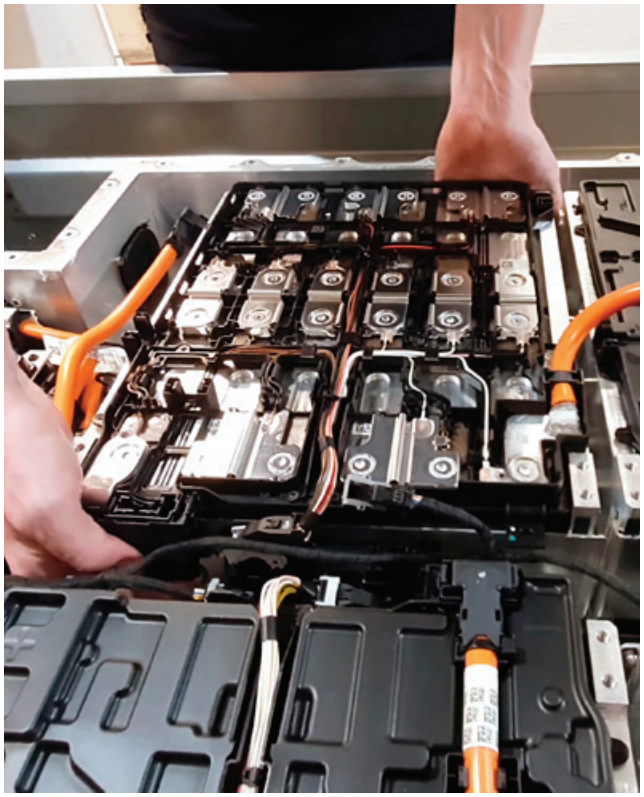
Compact Track Loaders Eat into Skid Steer US Market

The past decade has seen compact track loaders (CTLs) eat into the market share held by skid steer loaders in the US, before overtaking sales of their wheeled counterparts completely. In 2012, there were 36,125 skid steer loaders sold in North America, compared to 21,500 sales of compact track loaders. By 2022, that number had jumped to 93,000 compact track loader sales, compared to 30,000 skid steer sales.

Off-Highway Research put this down to CTLs exerting a lot less ground pressure, thanks to their tracks, allowing operators to operate in much poorer ground conditions.

Source: *International Construction* **Read The Article**

PSR Analysis: Since CTL units don't disturb soft ground as do skid steer loaders, it readily opens CTLs up to more applications, such as landscaping on terrain that has already been established and needs to be maintained. The article also looks at reasons why Backhoe Loaders have declined in the USA.



Achieving Peak Efficiency in Diesel Technology

Many leading construction companies now are looking at ways they can reduce their CO_2 footprints. With the advent of market-ready electrified powertrains, gas-fueled internal combustion and even fuel cell electric drives, where does the push for CO_2 reductions leave diesel power?

Diesel technology has made real improvements. With cleaner combustion cycles, the introduction of low-carbon fuels and advanced emissions treatment hardware, diesel has never been cleaner. Diesel engines are so clean that the latest on-highway diesel engines that proposed Euro 7 standards have truck manufacturers focusing on reducing brake dust and tire particulates rather than engine emissions.

Source: *International Construction* **Read The Article**

PSR Analysis: Paul Muller, Technical Sales Manager at Perkins, and Steve Nendick, Marketing Communications Director for Global and European Off-Highway at Cummins recently gave their thoughts on engine efficiency improvements with the overall message being these two companies are still pushing for improvements in diesel efficiency as a route to lower carbon emissions.

Vast Reservoirs of Clean Hydrogen Gas Discovered in Africa

A huge discovery of clean hydrogen gas has been discovered in the West African country of Mali. A town called Bourakébougou is drawing flammable gas from the earth that produces loads of electricity without CO_2 emissions. The site was prospected by Malian energy entrepreneur Aliou Diallo. In 2012, he recruited Chapman Petroleum to determine what the gas was. It was 98% hydrogen. Months later, Diallo's firm Petroma had installed a pilot unit to turn the gas into electricity that produced water as an exhaust product, and transformed the village into one with reliable, plentiful electricity.

It was long believed that hydrogen gas reservoirs were extremely rare. It's rare to find them in places where energy companies drill for oil and natural gas, true, but if one knows where to look, they're more common. One such place is the Earth's "cratons," the oldest and most stable parts of the tectonic plates. Some continents have more than one craton, others like the North American craton, are much larger and so cover most of the continent.

Source: *Hydrogen Central* **Read The Article**

PSR Analysis: Hydrogen fuel has huge potential to transition off fossil fuels as it's the best currently perceived alternative for diesel or petrol-based transport. Currently, the Malian wells could produce hydrogen gas at 50 cents per kilo, one-tenth of the cost of hydrogen created through electrolysis with solar, wind, geothermal, or other green energies.

Volkswagen Delays European Battery Factory

The US Inflation Reduction Act is reversing the decades long trend of offshoring American jobs (though it's not doing much to tamp down inflation). The latest news regarding the IRA is that Volkswagen, one of the largest European manufacturers of electric cars, is putting its plans to build more battery factories in eastern Europe on hold until the EU decides how it will respond to the IRA with manufacturing incentives of its own.

When Herbert Diess was the head of Volkswagen Group, he put a plan in place to build six battery factories in Europe by 2027, with Hungary, Poland, Slovakia, and the Czech Republic all in the running for one of them. The first

of those factories — a joint venture with Northvolt in which Volkswagen holds a 20% stake — is scheduled to begin production this year.

A second factory with Gotion High Tech is scheduled to be built in Germany. Volkswagen holds a 26% stake in that venture.

Another cell factory is scheduled to be built in Sagunto, near Valencia, Spain, with production starting in 2026. Skoda, which is based in the Czech Republic, would like to see at least one of the new Volkswagen battery factories constructed in its home country. Last October, Volkswagen Group said it expected to finally decide on a location for the eastern Europe plant in the first six months of 2023.

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

PSR Analysis: The Financial Times reports that Volkswagen could benefit from up to $10 billion in IRA incentives if it built a battery factory or two in the US. Volkswagen may be a European company — it has manufacturing facilities in many European countries, not just Germany — but that $10 billion figure has certainly gotten its attention.

EU Yields to Germany Demands, Proposes Separate e-fuels Category

According to a recent draft proposal, the European Commission has reportedly added an amendment to its 2035 combustion vehicle ban that allows for the sale of internal combustion engine (ICE) vehicles after the expiration date, as long as they run entirely on climate-neutral e-fuels.

This move is the latest chapter in a saga to ban ICE vehicles in the EU that has recently been stifled by countries insisting on the additional e-fuel exceptions, led by automotive juggernaut, Germany. Mere weeks after publicly declaring its distaste for the 2035 ban without e-fuel exceptions, Germany gained several EU allies, including Italy, the Czech Republic, and Poland.

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

PSR Analysis: E-fuels, like e-kerosene, e-methane, or e-methanol, are made by synthesizing captured CO_2 emissions and hydrogen produced using renewable or CO_2-free electricity. The fuels release CO_2 into the atmosphere when combusted in an engine. But the idea is that those emissions are equal to the amount taken out of the atmosphere to produce the fuel - making it CO_2-neutral overall. Its unfortunate that the EU has taken a step backwards in order the meet the needs of the auto industry at the same time when the USA has taken such a large step forward with the IRA.

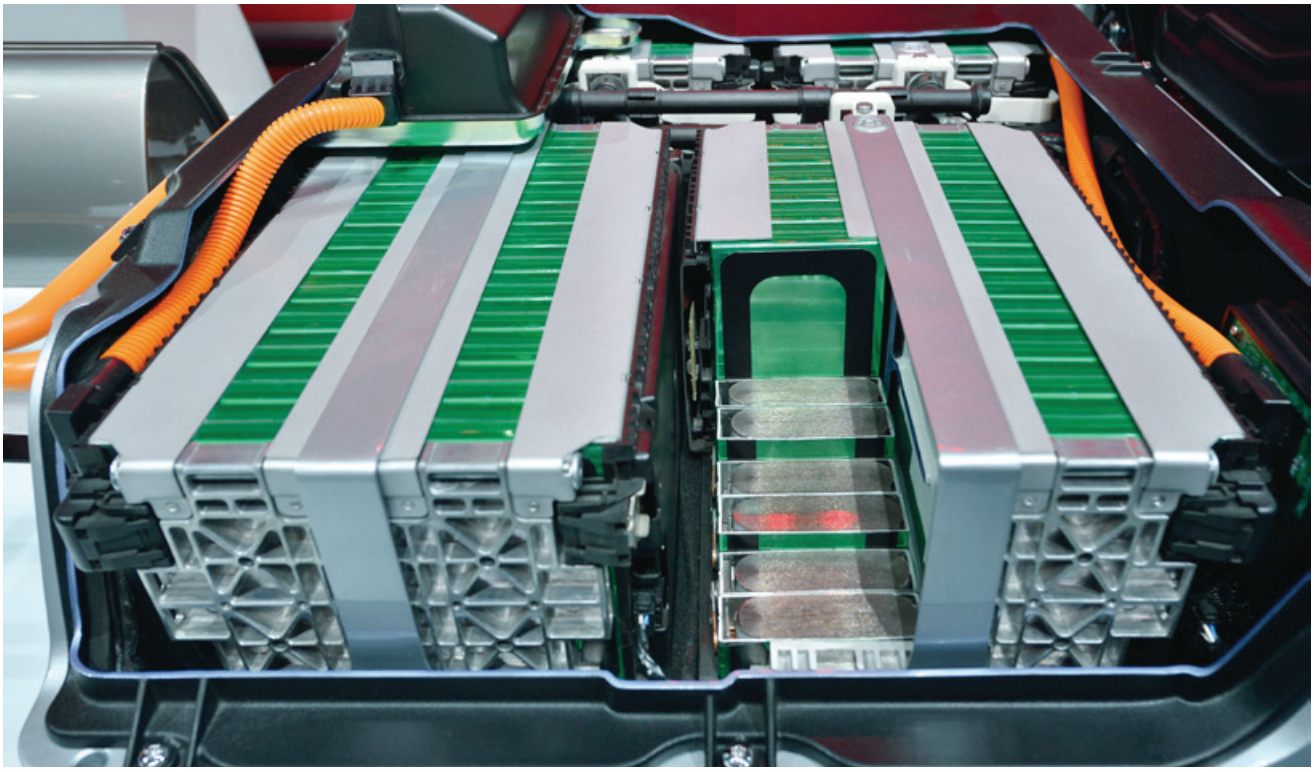
Briggs Invests $6 Million in Battery Plant

Briggs & Stratton announced it is making an additional investment of $6 million in its Advanced Battery Manufacturing facility in Tucker, Ga., to improve the safety, efficiency, and production capacity through the addition of automated equipment within its manufacturing process.

The 78,000 sq.ft. facility opened in 2020 to support a strategic supply agreement with Ingersoll Rand to power Club Car vehicles with Vanguard Lithium-Ion Battery Packs. The Tucker location includes four production lines with the capacity to accommodate future growth as the demand for battery power continues to grow across the off-highway industry. The new automated equipment will begin operation in early spring.

Source: *New Power Progress* **Read The Article**

PSR Analysis: This investment, while not huge compared to sums invested by say VW, shows that Briggs & Stratton is committed to electrification and to their Tucker facility. **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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