

In This Issue

Show Report: *Bauma-China Show Exhibits New Technologies*

Alternative Power Report:

- *World Moving On Without USA, As Priorities Change*
- *Chinese Electric Cars Lead US Producers*
- *Mercedes' Solar Paint Could Eliminate Plugging In EVs*
- *CATL Pushes Forward With All-Solid-State EV Batteries*

DataPoint: *2024 North America UTV Production*

Global: *Outboard Motor Production Forecast*

North America: *Nebraska AG Sues Truck Makers Over CARB*

South America/Brazil:

- *Volvo Expands OH Trucks Production in Brazil*
- *Volkswagen and Suspensys Develop Hybrid Concept Truck*

Japan: *Kubota To Build Excavator Plant in Germany*

South Korea: *Strike Causes Auto Production Problems*

Thailand: *Government To Ease EV Production Quotas*

China: *Faw Jiefang's Super Factory Launches First Hydrogen Engine*

India: *Tractor Industry Sees H2 2024 Revival*

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Show Report

By *Jack Hao*, Senior Research Manager – China, and
Dalibor Sablic, Director, Business Development-Europe

Bauma China 2024 Show Demonstrates New Technologies



[Download complete report here](#)

The Bauma China 2024 trade show, held at the Shanghai New International Expo Centre Nov. 26-29, showcased a significant evolution in the global construction machinery industry. The event expanded to 330,000 square meters, featured 3,542 exhibitors from 32 countries and attracted 281,488 visitors from 188 nations, a remarkable recovery from the pandemic-impacted 2020 edition.



*Jack
Hao*

This year's exhibition highlighted trends such as electrification, sustainable technologies, digital innovations, and intelligent system integration. Chinese manufacturers such as Dingli, LGMG, and Sinoboom presented groundbreaking products in new energy and hybrid solutions, while the presence of Western manufacturers was notably reduced.



*Dalibor
Sablic*

The trade show introduced dedicated zones for intelligent management and new energy technologies, reflecting a pivot toward green and digital solutions. Key product launches included electric and hybrid machinery, hydrogen-powered systems, and cutting-edge equipment from major players like Sany, XCMG, and Zoomlion.

Conferences focused on sustainability, new energy collaborations, and digital transformation underscored the industry's shift towards environmentally friendly practices and global market integration. The Bauma China 2024 effectively underscored China's growing influence in the sector, signaling a transformative phase for the construction machinery market. **PSR**

Alternative Power Report

By *Guy Youngs*, Forecast & Adoption Lead

World Moving On Without USA, As Priorities Change

The recent USA presidential elections suggest that the USA will embrace its status as the world's leading petrol state, while previous petrol states like Saudi Arabia plough vast sums into the energy of the future, renewables.

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The USA ceded manufacturing of the technologies required for fighting climate change — solar panels, wind turbines, batteries, electric vehicles, heat pumps, transformers, and more — to other countries, mostly China, over the past 40 years.



Guy
Youngs

Under President Biden, the USA enacted massive and unprecedented tariffs to protect the remaining industries, working to keep American money at home. But President-elect Donald Trump apparently will increase tariffs, according to statements he and other Republicans have made over the past year. These tariffs would be placed on imports from long-standing free-trade neighbors like Canada and Mexico.

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

PSR Analysis: If President Trump does take America down this path, there is a suggestion that US alternative power/renewables industries will follow the fate of US innovation. Until recently, the USA led the world in innovation, but now foreign students are returning to their countries and being welcomed to do research with big budgets, and now Chinese students are even bothering to come to USA to study. 18% of STEM PhD graduates were from China.

Chinese Electric Cars Moving Ahead of US Producers

With the US history as automobile leaders of the 1900s, it is easy to assume the US will continue being the automotive leader globally and especially domestically. However, the US is rapidly being outmaneuvered, out-innovated, and left in the dust by its Chinese competitors – particularly in the field of EVs.

This article brings together several stories relating to the automotive market with particular emphasis on BYD.

Overall, Chinese electric cars are leading the US auto industry, and it's hard to imagine that story won't get even more imbalanced in the coming four years with President-elect Donald Trump slowing US progress on EVs.

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

PSR Analysis: In China, there seems to be a real appetite for innovation, change and growth which seems to be lacking in Europe and the US. Many western auto brands are overpricing their vehicles and cancelling the most affordable models. This short-term outlook may be the end of these brands, as they are struggling to be relevant in today's market.

Mercedes' Solar Paint Could Make Plugging In EVs a Thing of the Past

Mercedes-Benz says it's developing a solar paint that would allow electric vehicle owners in places like Los Angeles to power their daily driving without ever plugging into charging units.

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Alternative Power Report

Continued from page 3

The photovoltaic material starts as a paste and is applied to body panels in a layer that's just 5 micrometers thick—thinner than a human hair.

The German automaker teased the idea recently during a future technology showcase at its R&D center in Sindelfingen, Germany. The photovoltaic material starts as a paste and is applied to body panels in a layer that's just 5 micrometers thick—thinner than a human hair. Covering every body panel of a mid-size SUV with the material would create 118 square feet of sun-harnessing surface area, a more than three-fold increase compared to the 32 square feet available from a single flexible panel on the roof.

Mercedes claims such a vehicle could capture enough energy to drive about 12,500 miles a year in sun-soaked Los Angeles.

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

PSR Analysis: This is an interesting twist on vehicles with solar panels (Aptera, Sono Motors etc.) but most of these don't generate enough energy so I would question the figure of 12500 miles a year, but even if it's a quarter of that, its still some significant saving.

CATL Pushes Forward With All-Solid-State EV Batteries

The world's largest EV battery maker is advancing a new type of battery, which promises higher energy density. According to a new local report, CATL is investing heavily while ramping up its workforce to bring all-solid-state EV batteries to market.

The company's solution has an energy density of up to 500 Wh/kg for lithium ternary batteries, 40% more than current batteries. However, the report said charging speed and cycle life are not quite where they need to be

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

PSR Analysis: With trial production reportedly kicking off, we could see CATL launch all-solid-state EV batteries sooner than expected. The benefits of solid state batteries (higher energy density leading to longer range, rapid charging, safety and lower weigh) are well known. **PSR**

DATAPoint: North America UTVs

415,900

By Carol Turner, Senior Analyst, Global Operations

415,900 units is the estimate by Power Systems Research of the number of Utility Vehicles (UTVs) expected to be produced in North America in 2024.

Industrial Utility Vehicles. These four-wheel gas, electric and diesel vehicles are used for a wide variety of applications such as moving people, equipment and supplies around a college campus, landscaping job or construction site. Most

 [Click Here To Go To Page 1](#)

DataPoint Report

Continued from page 4



brands are zero-emission, high-performance, affordable, and low maintenance vehicles.

Side by Side machines, also referred to as Utility Task Vehicles (UTV), are particularly popular now and are edging out ATVs for preference. Many UTVs can accommodate up to six passengers and are primarily designed for off-road demands.

Personnel Carriers. These low speed, low cost passenger carts are perfect for shuttling people and cargo. These vehicles can comfortably and smoothly transport up to six people and their belongings. Standard features include headlights, brake lights, and taillights. The carriers are used on golf courses, in neighborhoods, on campuses, at airports and in industrial parks.

Turf Utility Vehicles are specifically designed to meet the needs of sporting facilities such as golf courses and stadiums. They are commonly used for landscaping and transporting people or light material. Suppliers offer a wide variety of gas, electric or diesel utility vehicles. Vehicles can be customized with enclosed cabs, tool racks, dumpers and more for use on college campuses, parks, corporate campuses, apartment complexes.

ATV. A related vehicle is the ATV, a 4-Wheeled All Terrain Vehicle. It is designed to be driven off road. It seats one person, or sometimes two, one in front of the other.

This product information comes from industry interviews and from two proprietary databases maintained by Power Systems Research: **EnginLink™**, which provides information on engines, and **OE Link™**, a database of equipment manufacturers.

Market Share: With combined plant total of 25.5%, Mexico/US based Polaris leads in production of Utility Vehicles in North America. In second position is Honda with 11%; third, is Kubota with 10.5%.

Export: Canada: Up to 90% worldwide. Mexico: Up to 85% for NA markets. U.S.: Up to 40% worldwide

Trends. In 2023, production of Utility Vehicles (UTVs) in North America increased 1.5%. Expected production to decrease 3% from in 2024 from 2023. There is a slight lull in manufacturing since the Covid-19 pandemic fed the demand for Utility Vehicles referred to as the “Pandemic Paradox” (sales surged during lockdowns). The popularity of outdoor activities rose as people gravitated to the outdoors. The 2023 gain is attributed to stabilization of the overall economy, demand for products in the golf industry, federal government incentives and the desire for new equipment/greener technology especially within the sport and utility sectors.

Side by Side, also referred to as Utility Task Vehicle (UTV) models are particularly popular now and are edging out ATVs for preference. Many UTVs can accommodate up to 6 passengers and are primarily designed for off-road demands. Production is expected to increase by up to 5% by 2030.

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DataPoint Report
Continued from page 5

The global outboard engines market size was \$10.58B in 2023 and is anticipated to reach \$19.13B by 2034, growing at a CAGR of 5.53% from 2024 to 2034, according to Power Systems Research.

Electric (Battery Units)

2022: 43,884
2023: 48,463 (10.4% increase)
2024: 51,142 (5.5% increase)

Companies (*) Exclusively Battery

- American Landmaster-Indiana
- Club Car, LLC
- Columbia Vehicle Group, Inc. (*)
- Deere & Co. Horicon Works
- ICON (*)
- Intimidator, LLC
- JH Global Services, Inc.
- Motrec International, Inc. (*)
- Polaris Industries - Huntsville AL (starts in 2024).
- Textron Specialized Vehicles - GA
- Tomcar, LLC
- Toro Company - Tomah
- Waev Inc. (Taylor-Dunn)
- Wesley International (*)
- Yamaha Motor Manufacturing Corp. **PSR**

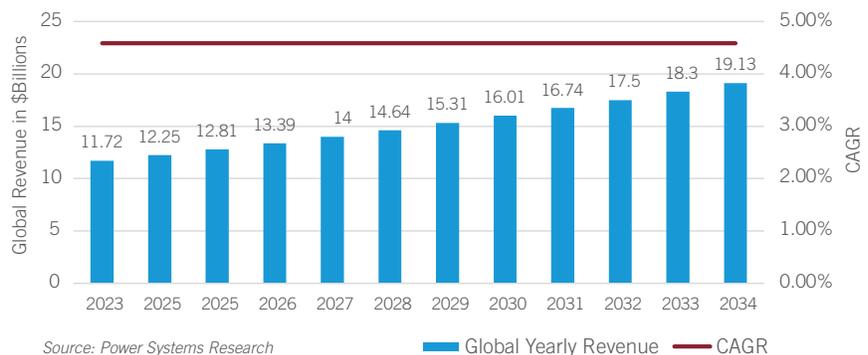
Global Report

By Michael Aistrup, Senior Analyst

Marine Outboard Engine Market Forecast: USD 19 Billion

The global outboard engines market size was \$10.58B in 2023 and is anticipated to reach \$19.13B by 2034, growing at a CAGR of 5.53% from 2024 to 2034, according to Power Systems Research (PSR).

Global Marine Outboard Engine Revenue



 [Click Here To Go To Page 1](#)

Global Report

Continued from page 6



Michael
Aistrup

Summary. The outboard engines market produces, sells, and distributes outboard motors. These engines are independent propulsion units positioned externally on a boat's transom instead of being integrated within the hull. These engines, which are used to power a variety of watercraft, such as boats, dinghies, pontoons, and fishing vessels, usually consist of a powerhead, gearbox, and propeller.

Demand Drivers. Today, many people are participating in water-related recreational activities, and the economic growth of the country, increasing consumer confidence, and technological innovations by boat manufacturers all are driving growing demand.

- OEMs are focusing on building versatile and affordable products to appeal to youth.
- Intuitive marine technology makes it easy to operate these products.
- The growing boat rental market and shared boat ownership are pushing outboard motor ownership.
- The surging popularity of environmentally friendly outboard engines cater to the preferences of eco-conscious consumers.
- While electrification addresses environmental concerns and the regulatory push for reducing carbon footprints, challenges like noise pollution and high initial costs persist. Hybrid and electric outboard engines, powered by lithium-ion batteries, offer alternative fuel options, catering to the evolving demands of maritime tourism, water skiing, and cruising.
- Government organizations, marine service providers, and scientific research entities drive environmental monitoring initiatives.
- The demand for new boats and outboard engines is heavily influenced by factors such as fuel efficiency and income levels. Increasing disposable income plays a vital role.
- The tourism industry contributes significantly to the market's growth, as recreational boating remains a popular activity for tourists and locals alike.
- The need for boats with dependable outboard engines has increased due to the expansion in maritime tourism, which includes activities like island hopping, whale watching, and sightseeing excursions.
- There is a natural market demand for replacement engines as older models age or become less efficient, especially from boat owners who value dependability and performance.

Market Trends. There are three important developing trends in this segment: Increased usage of turbochargers, a growing interest in electric outboard engines and expanded use of digital technology.

 [Click Here To Go To Page 1](#)

Global Report

Continued from page 7

- Turbochargers increase the volume of air to the combustion process without any additional requirement for large displacement cylinders.
- Electric outboard engines offer quieter operation, reduced emissions, and lower maintenance requirements.
- Digital technology is increasingly integrated into outboard engines, offering features such as digital controls, touch-screen displays, and connectivity options.

Market Challenges. The performance of the global economy is a critical factor affecting the boating industry as the demand for marine outboard engines is usually cyclic with fluctuations in the economy.

A growing number of purchasers are choosing engines built to reduce pollution in water bodies that either meet or surpass emission regulations. Greener consumers are increasingly drawn to outboard motors that run on natural gas or propane and electric outboard engines.

Market Overview. PSR anticipates steady growth in the coming years, driven by the rising popularity of watersports and recreational boating activities. More reliable and quieter new engine models cater to both younger and older generations, enhancing leisure experiences.

There is a rising need for greener and more sustainable outboard engine alternatives to conventional gasoline-powered ones as environmental concerns become more widely recognized. Outboard motors powered by electricity and hybrid technology have reduced noise pollution, emissions, and dependency on fossil fuels. **PSR**

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North America Report

By *Chris Fisher*, Senior Commercial Vehicle Analyst



*Chris
Fisher*

Nebraska AG Sues Truck Makers Over Partnership with CARB

Nebraska Attorney General Mike Hilgers has filed an antitrust lawsuit against some of the nation's largest heavy-duty truck manufacturers alleging a plot to stifle the availability of internal-combustion semi-trucks in favor of electric ones.

In the lawsuit filed Nov. 19, Hilgers said California and the California Air Resources Board have "recently embarked on a mission to eliminate

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North America Report

Continued from page 8

Hilgers' lawsuit calls the Clean Truck Partnership "nakedly anti-competitive," adding that it "represents an industry-wide commitment by companies to reduce their output of ICE vehicles and eliminate consumer choice."

the [internal combustion engine] vehicle and mandate the electrification of our nation's vehicle fleet."

While other lawsuits have been filed against California and CARB attempting to halt or slow down the regulations, **including one led by Hilgers** to block **CARB's Advanced Clean Fleets regulation**, Hilgers' new lawsuit targets manufacturers themselves, including Daimler Truck North America (DTNA), International Motors, Paccar, Volvo Group North America, and the Truck & Engine Manufacturers Association.

"Rather than push back or simply compete in the marketplace, heavy-duty truck manufacturers colluded to sign an agreement called the '**Clean Truck Partnership (CTP)**,'" Hilgers said in a press release. "The agreement commits the signatory manufacturers not to oppose additional state-level electric-truck mandates and to restrict output of diesel-powered semi-trucks in lockstep, even if a court rules that the regulations are unlawful."

Hilgers' lawsuit calls the Clean Truck Partnership "nakedly anti-competitive," adding that it "represents an industry-wide commitment by companies to reduce their output of ICE vehicles and eliminate consumer choice, which will drive up prices for those same vehicles in Nebraska and elsewhere to subsidize the so-called 'transition' to ZEVs." Additionally, the lawsuit claims that "the OEMs' broad promise to follow CARB's regulations in other states that purportedly 'will' adopt them, and to not oppose any such out-of-state proposals, reflects the OEMs' intention to reduce output and raise prices in states that have not and may never adopt such regulations, including Nebraska."

The lawsuit seeks a judgement and declaration that the named defendants have violated the Nebraska Consumer Protection Act and that the CTP violates the antitrust laws of Nebraska and is, therefore, null and void in the state. The lawsuit also seeks a permanent injunction to block the defendants from reducing their output of Class 8 ICE vehicles in Nebraska pursuant to the CTP, from raising prices for Class 8 ICE trucks as a result of the CTP agreement, and from coordinating activity or taking any action pursuant to the CTP in Nebraska.

Finally, the lawsuit asks the court to declare the CTP null and void nationwide "because it will injure Nebraska residents and violate Nebraska antitrust laws if defendants comply with it in other states.

Source: CCJ Digital

PSR Analysis. The OEMs are caught between a rock and a hard place with regards to the CARB ACT emission regulations that were implemented in California in January 2024. The OEMs are in a difficult position since they are required to sell a certain percentage of zero-emission trucks or risk not being able to sell ICE trucks. Aside from up-front vehicle costs, other barriers to adoption including the lack of charging infrastructure and truck duty cycles are impeding the fleets' ability to acquire zero-emission trucks.

[↑ Click Here To Go To Page 1](#)

North America Report

Continued from page 9



At the time of this writing the EPA has not officially given a waiver for CARB to enforce these rules. With the Trump Administration entering power in January, the EPA may not be inclined to give a waiver to the CARB ACT, thus likely making this legislation void.

One thing is for certain, there is currently a significant amount of confusion among the fleets in California. **PSR**

South America/Brazil Report

By *Fabio Ferraresi*, Director Business Development South America

Volvo Expands OH Trucks Production in Brazil



*Fabio
Ferraresi*

Volvo Construction Equipment has expanded its Brazilian manufacturing portfolio by localizing production of the A45G articulated hauler at its Pederneiras facility in São Paulo. This model, the largest articulated hauler produced by Volvo in Brazil, is now eligible for BNDES's Finame financing program, that offers attractive rates and favorable payment terms.

The A45G is designed for industries requiring heavy-duty articulated haulers with a payload capacity of 41 tons, such as mining and heavy construction.

Approximately 80% of the articulated haulers produced by Volvo in Brazil are exported to the United States, one of the world's largest markets for this type of equipment.

Source: *Revista M&T* [Read The Article](#)

PSR Analysis. Adding the A45G to its production line further solidifies Volvo Pederneiras Plant as an export production hub and its role as a critical supplier in Volvo's global value chain. By manufacturing locally, Volvo CE can leverage Brazil's industrial ecosystem to reduce production costs compared to importing vehicles.

Volkswagen and Suspensys Develop Hybrid Concept Truck

Volkswagen Caminhões e Ônibus, in collaboration with Suspensys, has unveiled the VW Meteor Hybrid, Brazil's first hybrid concept truck. This vehicle features a diesel engine combined with an electric auxiliary axle developed by Suspensys, enabling intelligent traction management that optimizes performance, reduces travel time, and enhances fuel efficiency.

The intelligent traction system allows the third axle to become driven, transforming the truck into a 6x4 configuration when necessary. This provides additional

[↑ Click Here To Go To Page 1](#)

South America Report

Continued from page 10

Kubota says it plans to build a factory in Germany to manufacture small excavators.

torque for uphill climbs and improved starting power when towing a loaded trailer. Preliminary studies suggest that this setup can decrease travel time due to the extra power.

Additionally, the regenerative system recovers energy during deceleration and in areas with elevation changes, enhancing efficiency and battery storage. The extent of increased autonomy depends on the operation and route. Initial tests estimate that the Meteor Hybrid concept can reduce diesel consumption by up to 10%, depending on the operation's topography. This directly impacts CO₂ emissions, potentially avoiding over 25 tons annually.

Source: *Revista M&T* [Read The Article](#)

PSR Analysis. This concept aligns with Volkswagen Caminhões e Ônibus's strategy for decarbonization, as it can operate solely on the diesel engine during long trips without the need for charging infrastructure. This flexibility is particularly useful for routes lacking charging stations, increasing the operational versatility of the hybrid model. **PSR**

Far East: Japan Report

By *Akihiro Komuro*, Research Analyst, Far East and Southeast Asia

Kubota To Build Excavator Plant in Germany



*Akihiro
Komuro*

Kubota says it plans to build a factory in Germany to manufacture small excavators. Production will begin in 2026, and the new factory will increase the local subsidiary's production capacity by 40%. Kubota will acquire a factory site near the current factory of Kubota Baumaschinen, which manufactures and sells construction equipment in Germany. In the fiscal year ending December 2022, sales of construction equipment in Europe accounted for 20% of the company's total sales in this sector, behind North America and Australia, which accounted for 60%.

Demand for small construction equipment in Europe is currently sluggish. In the first nine months of fiscal 2024, sales of construction equipment in Europe declined 29.1 billion yen from the same period a year earlier.

Kubota says the reason for building a new plant despite the sluggish demand for construction equipment is that the market has bottomed out.

Source: [The Nikkei](#)

PSR Analysis: In Germany, Kubota has held the leading market share for its main product, mini excavators, for 20 years. Although the construction equipment market is currently sluggish, this move can be seen as an investment

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Far East Report

Continued from page 11



in anticipation of an upturn in demand in the medium to long term. The EU has the most stringent exhaust regulations, and acceptance in such a market demonstrates the company's ability to respond to increasingly stringent environmental regulations in other countries. **PSR**

極東 > 日本レポート:

小室 明大 – 極東及び東南アジア リサーチアナリスト

クボタ、ドイツにショベルカーの新工場 現地生産能力を4割増

クボタはドイツに小型ショベルカーの新工場を建設すると発表した。2026年から生産を開始し、現地法人の生産能力を4割増やす。ドイツで建機の製造販売を手掛けるクボタバウマシーネンの現工場の近隣に新たな工場用地を取得する。2022年12月期の建機事業における欧州の売上高は2割で、北米・オーストラリアの6割に次ぐ。

欧州での小型建機の需要は足元で低迷している。2024年1～9月期の欧州での建機の売上高は前年同期比で291億円減った。

建機の需要が低迷するなかでの新工場建設についてクボタは「中長期的に需要拡大が見込まれる」ためだとしている。一時的に市場が低迷しているものの、吉川正人副社長は「今期と比べてさらに悪くなることはない」と底打ち感を強調する。

参考: 日経 (一部筆者により元記事内容を改編しました)

PSR 分析: ドイツにおいてクボタは現在、主力製品であるミニバックホー市場で20年間トップシェアをキープしている。建機市場は全体的に直近の販売がふるわず現在は低調な市場となっているが、中長期的には需要が上向くことを期待した投資と言える。EUは排ガス規制が最も厳しい地域であり、そうした市場で受け入れられるということは、今後ますます厳しくなる他国の環境規制にも対応できる能力の証明となる。 **PSR**

Far East: South Korea Report

By *Akihiro Komuro*, Research Analyst, Far East and Southeast Asia

Strike Causes Auto Production Problems

The declaration of martial law by South Korean President Yoon Suk Yeol has sparked a series of strikes by labor unions. The unions, which are the support base for the opposition parties calling for the president's resignation, are mobilizing up to 200,000 people. Major industries such as the automobile industry are already affected.

 [Click Here To Go To Page 1](#)

Far East Report

Continued from page 12

The strike was led by the umbrella organization, the National Metal Workers' Union. In addition to Hyundai Motor, which is a member of the union, more than 70,000 workers from other companies that support the Korean auto industry, such as Kia Motors, GM Korea and Hyundai Mobis, an auto parts manufacturer, have joined the strike.



Akihiro
Komuro

There have also been production problems. According to company estimates, the number of cars produced by Hyundai Motor and GM Korea fell by about 3,600 and 1,000 to 2,000 respectively because of the series of strikes. The metalworkers' union has said that if President Yoon does not resign, it will launch an indefinite general strike. The strike could last for a long time and the impact on production could be significant.

Source: The Nikkei

PSR Analysis: The declaration of martial law by the South Korean president reportedly has had a huge impact on the domestic economy. If the political turmoil continues, it will have an impact on the domestic manufacturing industry. At the time of this writing, the turmoil is still in full swing, and it is believed that it will take some time before it is completely over.

The activities of the South Korean manufacturing unions are known to be extremely intense, and if this political turmoil increases, it could upset the economic. The South Korean economy is deteriorating due to sluggish domestic demand caused by inflation, increases in the minimum wage, and a sluggish Chinese economy, which is the largest export destination.

The declaration of martial law has led to a weakening of the won in foreign exchange and a turbulent stock market. If the unstable political situation continues, it could lead to a decline in industrial competitiveness. **PSR**

極東 > 韓国レポート:

小室 明大 – 極東及び東南アジア リサーチアナリスト

韓国労組スト拡大、20万人で退陣圧力 自動車生産に支障

韓国の尹錫悦大統領が一時宣言した戒厳令に端を発した労働組合のストライキが相次いでいる。大統領の退陣を求める野党の支持基盤である労組が最大20万人を動員する。自動車など主要産業に支障が出始めた。ストを主導したのは上部団体にあたる全国金属労組だ。傘下の現代自のほか、完成車メーカーの起亜や韓国GM、自動車部品メーカーの現代モビスなど韓国の自動車産業を支える従業員7万人以上がストに加わった。生産への支障も出た。企業側の試算によると、一連のストで自動車の製造台数は現代自が約3600台、韓国GMが1000~2000台減少したという。金属労組は尹氏がこのまま退陣しなければ、11日から無期限ゼネストに突入するとしている。ストが長引いて生産への影響がさらに大きくなる可能性がある。

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 [Click Here To Go To Page 1](#)

Far East Report

Continued from page 13

The Thai government says it will relax the requirement for EV manufacturers receiving subsidies to produce a certain number of vehicles by 2024.

参考: 日経 (一部筆者により元記事内容を改編しました)

PSR 分析: 韓国の大統領が3日の夜に突然発した戒厳令は非常に大きなインパクトを持って報じられている。政治について触れるのはここにはそぐわないが、政治の混乱が長期化すれば国内の製造業にも影響が出るだろう。これを書いている時点では未だに混乱の最中であり、完全に終息するまでにはまだ時間がかかると見られる。

韓国製造業の労働組合の活動は非常に激しいことでよく知られている。この政治の混乱によってその激しさがより増すことで、企業の安定的な経済活動に支障が出るリスクも指摘されている。韓国経済は、インフレによる内需の低迷や最低賃金の上昇、最大の輸出先である中国経済の不振で悪化している。戒厳宣言の余波で為替のウォン安が進み、株式市場も動揺した。不安定な政治情勢が続けば、産業競争力の低下にもつながる可能性がある。**PSR**

Southeast Asia: Thailand Report

By *Akihiro Komuro*, Research Analyst, Far East and Southeast Asia

Thai Government To Ease Some EV Production Quotas



*Akihiro
Komuro*

The Thai government says it will relax the requirement for EV manufacturers receiving subsidies to produce a certain number of vehicles by 2024. There had been calls for a revision from Chinese manufacturers and others. This is in response to poor market conditions for EVs.

The Board of Investment (BOI) of Thailand provides subsidies to manufacturers that can be applied to the purchase of EVs. The subsidy amount is up to about US\$ 3,000 (100,000 baht or about 440,000 yen) per vehicle, which is about 10% of the purchase price of a medium-sized SUV.

Most of the subsidies have already been paid to the manufacturers. The manufacturers that received the subsidies were required to produce a certain number of vehicles in Thailand by 2024, and they were required to produce the same number of vehicles that they exported and sold in Thailand in the two years from 2022 to 2023. If they failed to meet this target, they would be subject to penalties.

Due to factors such as stricter car loans, sales of EVs have been slow recently. The BOI has changed its policy to allow production to continue until 2025. However, in order to receive the 2025 subsidy, the 2024 production target must be met.

Until around 2023, imported EVs were the norm in Thailand. The government has begun implementing measures to support manufacturers to encourage production in Thailand. Companies such as China's BYD and Great Wall Motor had already started production in the country.

[↑ Click Here To Go To Page 1](#)

Southeast Asia Report

Continued from page 14



Source: The Nikkei

PSR Analysis: This news does not mean that it will be easier for Chinese EV manufacturers operating in Thailand. To take advantage of the EV shift and develop their own domestic automotive industry, Thailand and other countries in Southeast Asia have been improving their EV-related subsidies and support systems. However, the effects of the global EV market slowdown are also being felt here.

We can expect to see a review of such schemes in other countries as well. Chinese manufacturers will be particularly affected. Chinese manufacturers operating in Thailand and Indonesia are all BEV-focused companies. This news is about a change in the system to support the activities of companies that have expanded into the region, but if the EV market slows further, there is a possibility that the supply and demand balance will collapse, leading to overproduction.

In fact, there are many overproduced BEVs sitting idle in mainland China. Southeast Asia does not want this situation to happen again. If the subsidy system is fundamentally revised, it is possible that the position of Chinese brands in the Southeast Asian auto market will change significantly. **PSR**

東南アジア > タイレポート:

小室 明大 – 極東及び東南アジア リサーチアナリスト

タイ政府、EV生産ノルマ緩和へ 補助金受給メーカー対象

タイ政府は、補助金を受給したEVメーカーが2024年内に生産すべき台数の義務を緩和すると発表した。中国のメーカーなどから修正を求める声が上がっていた。EVの市況が振るわないことに対応した。

タイ投資委員会 (BOI) はEV購入時に適用できる補助金をメーカーに支給している。補助額は1台につき最大10万バーツ (約44万円) で、中型SUVの場合は購入価格の1割程度にあたる。

補助金の大半はすでにメーカーに支払われている。受給したメーカーは2024年内にタイで生産すべき台数が義務付けられ、2022年と2023年の2年間にタイへ輸出・販売した台数と同じ数を製造する必要があった。未達ならペナルティーを受けることになっていた。

自動車ローンの厳格化などにより足元ではEVの販売が振るわない。BOIは2025年に繰り越して生産しても良い方針に切り替える。ただ2025年分の補助金を取得するためには2024年分の生産台数を達成しなければならない。

BOIの長官は「電動化への移行期にあたる中、メーカーへの十分な支援にコミットする」とコメントした。要件の緩和は閣議を経て正式に承認される見通しだ。

タイのEVは2023年ごろまで輸入車が一般的だった。政府はタイで生産を促す

[Click Here To Go To Page 1](#)

Southeast Asia Report

Continued from page 15

The project is expected to have a total investment of 614 million yuan, covering medium-sized engines ranging from 5 to 7 liters, heavy-duty hydrogen engines, and production lines.

ためメーカー向けの支援策を開始。中国のBYDや長城汽車などが現地で生産を始めていた。

出典: 日経 (一部筆者により元記事内容を改編しました)

PSR 分析: このニュースはタイに進出している中国のEVメーカーが楽になる、という意味ではない。EVシフトの波に乗じて自国の自動車産業を発展させようと、タイに限らず東南アジア各国ではEV関連の補助金や助成制度を充実させてきたが、世界的なEV市場の減速の影響がここにも現れている。こうした制度の見直しは今後もタイ以外の国でも現れるだろう。特に影響を大きく受けるのは中国メーカーだ。タイやインドネシアへ進出している中国メーカーはBEVを軸にしている企業ばかりだ。今回のこのニュースは現地に進出した企業の活動をサポートする目的の制度変更だが、今後、EV市場がさらに鈍化するようなことがあれば、需給バランスが崩れて過剰生産に陥る可能性がある。現に中国本土では過剰に生産され使われないまま放置されているBEVが多数ある。こうした状況を東南アジアは望んでいないはずだ。補助金制度の抜本的な見直しができるようなことがあれば、それは東南アジアの自動車市場における中国ブランドの立場を大きく変える可能性がある。**PSR**

China Report

By Jack Hao, Senior Research Manager - China



Faw Jiefang's Super Factory Launches First Hydrogen Engine

In December, FAW Jiefang began production on its first hydrogen engine in Dalian, Liaoning Province, marking a key step for it in the field of green intelligent transportation.

Jack
Hao

The project is expected to have a total investment of US\$84.41 million (614 million yuan), building medium-sized engines ranging from 5 to 7 liters, heavy-duty hydrogen engines, and production lines. The CA6HV3 production line is the world's first hydrogen engine production line; it will help FAW Jiefang build a more complete powertrain product line. It is reported that the CA6HV3 hydrogen engine, independently developed by FAW Jiefang, is the first domestic heavy-duty commercial vehicle direct-injection hydrogen engine in China. It leads the country in thermal efficiency and product reliability and achieves zero carbon emissions.

The construction of the factory, which began in July 2022, has a total investment of 620 million yuan and has an annual production capacity of 50,000 engines. It integrates three core characteristics of super technology, super efficiency, and super intelligence, reaching the industry's smart manufacturing highest level - Integrated Level 3 standard. Currently, the core production of the globally debuting green

 [Click Here To Go To Page 1](#)

China Report

Continued from page 16

intelligent power domain 6DV engine has an industry-leading mass production thermal efficiency, a strong power of 640Ps, a super torque of 3000Nm, and an ultra-long life of two million kilometers with an ultra-long maintenance cycle, all leading the industry. It is reported that FAW Jiefang will subsequently accelerate the factory upgrade to meet the production needs of 15L natural gas engines, 15L hydrogen engines, 14.5L diesel engines, and 5-7L new medium-sized engines.

Source: *China Daily* [Read The Article](#)

PSR Analysis. The global sales of hydrogen-powered heavy-duty trucks are expected to have a compound annual growth rate (CAGR) of over 50%, with the Chinese market size accounting for 35% of the global market. Hydrogen fuel cell trucks are seeing gradual improvements in range, hydrogen production, storage, transportation, and the manufacturing level of fuel cell systems and their core components. However, further technological breakthroughs in fuel cell technology are still needed, such as increasing the power density of fuel cells, reducing the cost of catalysts, and extending battery life, to enhance the performance and reliability of hydrogen-powered heavy-duty trucks.

Infrastructure Insufficiency: The number of hydrogen refueling stations is still relatively small, and their distribution is not widespread enough, limiting the operational range of hydrogen-powered heavy-duty trucks. The construction of refueling stations requires high investment and complex approval procedures, which also restricts the rapid popularization of refueling stations.

Cost Issues: Although the usage costs are gradually decreasing, the purchase cost of hydrogen-powered heavy-duty trucks is still high at present, including the high prices of key components such as fuel cell systems and hydrogen storage tanks, affecting their market promotion and large-scale application. **PSR**

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Aditya
Kondejkar

India Report

By *Aditya Kondejkar*, Research Analyst – South Asia Operations

Tractor Industry Sees H2 2024 Revival

The Indian tractor industry, which faced a stagnant first half of the fiscal year, is pinning its hopes on a robust second-half performance. With favorable developments like healthy reservoir levels, improved minimum support prices (MSPs), and a positive outlook on the Rabi crop, manufacturers are optimistic about achieving double-digit growth by the year-end.

H1 Performance: A Mixed Bag

In the first half of the fiscal year, tractor sales remained flat, growing marginally to 472,000 units from 469,000 units in the same period last year. The industry's

[↑ Click Here To Go To Page 1](#)

India Report

Continued from page 17



decline in FY2024 to 876,000 units, following a record-breaking FY23 at 945,000 units, underscores the impact of a high base effect, weak precipitation, and uneven monsoons. A shift in the festive calendar, with Diwali and Dhanteras occurring later this year, also affected demand in the early months.

H2 Optimism: Rabi Sowing Fuels Positive Sentiment

The completion of the Kharif harvest and the commencement of Rabi sowing are fueling optimism across the sector. Farmers' cash flows remain strong, buoyed by good reservoir levels and higher MSPs for key Rabi crops. These factors, along with robust government spending on rural and agricultural development, are expected to boost tractor demand in the coming months.

“Farmer sentiments are positive, and healthy progress in Rabi sowing indicates that we're poised for a strong second half,” notes Rajesh Jejurikar, Executive Director and CEO for Mahindra & Mahindra's Auto and Farm Sector.

Festive Push and Retail Sales Trends

October brought signs of revival, with Mahindra & Mahindra and Escorts Kubota reporting significant growth. Mahindra saw a 30% jump in domestic sales, while Escorts Kubota achieved its highest-ever October sales, growing 22.6% year-on-year. However, the retail sales story was mixed. Overall tractor retail sales rose by 3% YoY in October, but rural sales saw a slight dip of 1.3%, countered by a 5.4% growth in urban areas.

Among top brands, John Deere led with a 29% YoY increase in retail sales, while TAFE Ltd and Escorts Kubota reported flat or declining figures, signaling uneven recovery across manufacturers.

Outlook: Growth Drivers and Challenges

The second half of the fiscal year is projected to deliver 10-15% volume growth, driven by:

- **Healthy Rabi Crop Expectations:** Good reservoir levels and increased government support through MSP hikes are expected to ensure higher cash inflows for farmers.
- **Improved Rural Sentiments:** Rising government expenditure on rural development and agricultural infrastructure is creating a positive ripple effect on demand.
- **Pre-Buying Ahead of Emission Norms:** The upcoming TREM-V emission norms in April 2026 are likely to drive significant pre-buying activity, boosting sales in late FY25 and early FY26.

Source: *Auto Care Professional* [Read The Article](#)

PSR Analysis: Despite these positive indicators, challenges persist, including fluctuations in rural demand and competitive pressures among key players.

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 [Click Here To Go To Page 1](#)

India Report

Continued from page 18

The tractor industry remains cautiously optimistic about closing the fiscal year with moderate growth, bolstered by favorable macroeconomic and policy trends.

Cautious Optimism for FY25 and Beyond

The tractor industry remains cautiously optimistic about closing the fiscal year with moderate growth, bolstered by favorable macroeconomic and policy trends. With the groundwork laid by Rabi sowing and strong rural sentiment, the sector is poised not only for recovery but also for setting new benchmarks in FY26 as regulatory changes loom on the horizon. **PSR**

Russia Report

By *Maxim Sakov*, Market Consultant, Russia Operations

Editor's Note: Power Systems Research has paused all research and business development activities in Russia. We maintained an important presence in Russia from 2013-2022 to bring important updates to our clients about the powered equipment markets within Russia. We are continuing to monitor the current situation and hope to again establish this presence when the conflict with Ukraine is resolved. Please contact us at info@powersys.com if you have questions regarding business conditions in Russia. Thank you. **PSR**

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