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## Alternative Power Report

By *Guy Youngs*, Forecast & Adoption Lead



*Guy  
Youngs*

### Electric Vehicles and The H2 Battle To Be Included in the Family

This article looks at the nomenclature of Electric Vehicle and Zero Emissions vehicles and reminds us the method for generating the electricity it uses is vital to the overall picture. It then discusses the basics of Fuel Cell Vehicles and then compares them to EVs

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

**PSR Analysis:** This is a fairly basic article but it's a good reminder of the terms and basics.

### Battery Recycling Center Will Have Big Impact On Europe

Recycling lithium-ion batteries is extremely important, as these batteries contain valuable metals such as cobalt, copper, and lithium that can be recovered and reused. By recycling these metals, we can reduce our reliance on mining and extractive activities that aren't free or even cheap.

Li-Cycle (a recycling company) and Glencore (a mining company) have partnered to do something significant in this space. The proposed "Portovesme Hub" would focus on producing essential battery materials like cobalt, lithium, and nickel by recycling used battery content. A letter of intent has been signed to commence the preliminary discussions.

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

**PSR Analysis:** This facility can't take care of Europe's full battery recycling needs, but the research and development of mass recycling processes sets the stage for future facilities that will take care of the rest of the needs. So, this announcement is both good for the near-term and the long-term future. **PSR**

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## Global Report

*The global electric scooter market is growing at a rate that will enable it to surpass \$56 billion by the end of 2033, according to a forecast by Power Systems Research.*



Michael Aistrup

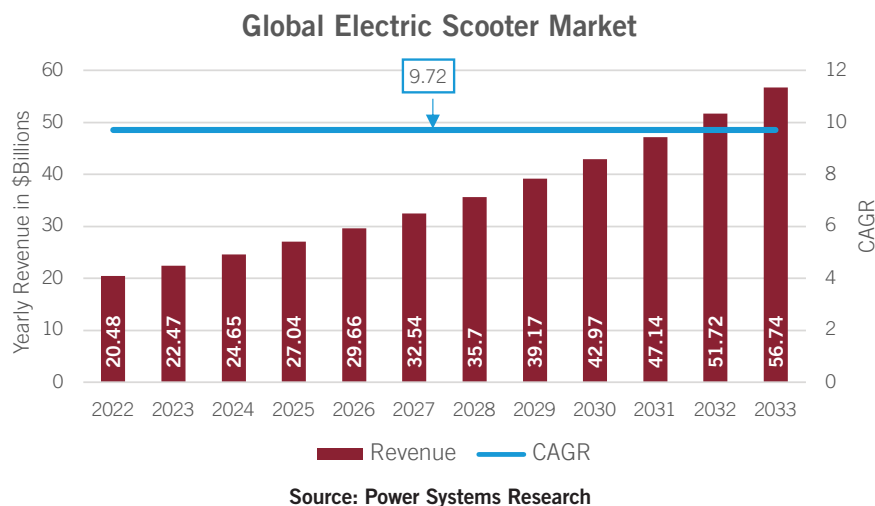
### Global Electric Scooter Market Could Reach \$56B in 2033

By *Michael Aistrup, Senior Analyst*

The global electric scooter market is growing at a rate that will enable it to surpass \$56 billion by the end of 2033, according to a forecast by Power Systems Research. The forecast predicts a projected growth rate of 9.72% by 2033.

This high growth rate is attributed to the rising demand for electric vehicles because of the increasing worldwide population.

An Electric Vehicle (EV) is a vehicle that runs on electricity/battery power. Electric vehicles have low running costs due to fewer moving parts and are environmentally friendly as they use little or no fossil fuels. Some EVs use lead-acid or nickel-metal hydride batteries, but lithium-ion batteries are now used in battery-powered electric vehicles for their long life, excellent energy storage, and low self-discharge rate.




### GLOBAL DEMAND DRIVERS

Several local and global factors are driving the e-scooter market.

- **Rising air pollution caused by increasing traffic congestion.** World Health Organization's data shows that most of the global population (99%) breathes air that exceeds WHO guideline limits and contains high levels of pollutants, with low and middle-income countries being most at risk.

Electric scooters offer a practical solution for short-distance commuting, providing users with the flexibility to navigate through traffic and reach their destinations quickly. Compact size and maneuverability make them ideal for crowded urban environments.

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## Global Report

Continued from page 3

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- **Rising desire** of individuals to become more independent by owning two-wheeler transportation. The factors that are contributing to this tendency are fear of public transportation services, financial restrictions, and simple financing options available to purchasers.
- **Government initiatives** to reduce the use of fuel to decrease dependency on other countries for oil. The increasing cost of fuel production decreases economic growth, thereby increasing poverty levels. The use of electric scooters reduces fuel costs, increases the efficiency of vehicles, and decreases environmental pollution.
- **Increasing urbanization** with advancements in lifestyle and rising living standards of people owing to more disposable income leads to economic growth in the region. Rising economic standards increase the spending capacity of people for goods including electric scooters.
- **Concern** about global warming. Increasing demand for fuel-efficient vehicles, coupled with growing concerns over greenhouse gas and carbon emissions.
- **Advancements** in battery technology have improved the performance and range of EV scooters. Lithium-ion batteries have become more affordable, lightweight, and capable of delivering extended mileage. This has alleviated range anxiety and increased the appeal of electric scooters as a viable mode of transportation.

**CHALLENGES.** Even though there are several strong drivers of growth for EV scooters, there are several factors that could slow the growth of EV scooters.

- **Lack of infrastructure in emerging countries.** There is little advanced infrastructure in many countries. There is a huge need for charging stations at every 50 km, about the limit of electric scooters. This is not sufficient for a long journey.

There are potential solutions at hand, however. Battery swapping could eventually play a role in solving infrastructure issues and range anxiety. Manufacturers are developing their recharging networks in developing countries and Governmental participation will also be needed to develop these networks.

- **High cost** of electric scooters. The high cost can still be out of reach for individuals in developing countries.
- **Lack of good road** network. Bad roads will increase maintenance costs.

**BATTERY TYPE.** The Li-Ion segment is expected to have the largest share of the electric scooter market over the forecast period. The growth of the segment can be attributed to the lithium-ion battery chemistry, quick and efficient charging, long battery life, and low maintenance costs. Lithium batteries charge with nearly 100% efficiency, compared to the typical lead-acid batteries 85% efficiency.

**CONCLUSION.** Lack of charging infrastructure will be the largest obstacle to the expansion of the e-scooter global market. The most important consideration for any user is the ease with which an e-scooter can be charged anywhere at any time. Most emerging countries lack the required charging stations. **PSR**

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*In April, the California Air Resources Board (CARB) voted unanimously to finalize its Advanced Clean Fleets rule that requires all new medium- and heavy-duty vehicles sold or registered in the state of California to be zero-emission by 2036.*

## North America Report

By *Chris Fisher*, Senior Commercial Vehicle Analyst

### CARB Is Phasing Out Heavy Trucks



*Chris  
Fisher*

In April, the California Air Resources Board (CARB) voted unanimously to finalize its Advanced Clean Fleets rule that requires all new medium- and heavy-duty vehicles sold or registered in the state of California to be zero-emission by 2036.

Among these requirements is a new 2036 target for an end to diesel truck sales. This was lowered from an early 2040 target, with the thought that 2040 would be too late to reach California Governor Gavin Newsom's goal for 100% zero-emission

medium- and heavy-duty vehicles by 2045.

The 2036 target is only one year after the 2035 target for passenger cars. Also in the rule, state and local agencies must purchase 50% ZEV by 2024, and 100% ZEV by 2027.

And drayage vehicles, the category of trucks that transport cargo from ports to distribution centers, must reach 100% all-electric purchases by 2024.

CARB considered allowing CNG (Compressed Natural Gas) trucks to qualify as part of the regulation, but data shows that it's nowhere near as clean as ZEV and not much better than diesel, so the focus with these regulations is on zero-emission trucks only, including both plug-in and hydrogen-fueled. It recalls the old Henry Ford quote: "Any customer can have a car painted any color that he wants, as long as it is black" –You can use any powertrain you want, as long as it's electric. See the article below from ELECTREK.

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

**Source:** *California Press Release* [Read The Article](#)

**PSR Analysis:** To my knowledge, California has yet to ban ICE's registered outside of California from operating within the state. If the state did this, it would certainly infringe upon interstate commerce. At the time of this writing, 19 states have sued the EPA over this phaseout arguing that it is an attempt to regulate traditional trucking out of existence through mandating zero-emission trucks. **PSR**

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## DATAPOINT: North America Off-Highway Trucks 1,600

By *Carol Turner, Senior Analyst, Global Operations*

1,600 units is the estimate by Power Systems Research of the number of Off-Highway Trucks expected to be produced in the United States and Canada in 2023. None of these trucks are electric units.

Unlike On-Road Trucks, Off-Highway Trucks are specifically designed to work in punishing environments and are made to haul material and debris around a work site. These purpose-built vehicles are not constrained by the weight limits of their smaller on-road counterparts.

Product information for this report 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:** Caterpillar leads in the production of Off-Highway Trucks in NA with 45% of total units manufactured. In second position is Deere with 42%; third, is Komatsu America with 11%.

**Export:** Collectively, up 20% worldwide.

**Trends:** In 2022, production of Off-Highway Trucks in North America increased nearly 15% to 1,681 units from 1,465 units produced in 2021. Production is expected to remain flat in 2023 with a slight drop of about 2% to production of slightly more than 1,600 units. The gain in 2022 can be attributed to the growth of mining related activities, especially within the copper and gold segments. The rise is also attributed to construction related demands for heavy equipment for off-highway usage.

Expect production to increase 5% by 2025 as the need for new equipment for mining operations increases. It is speculated that there will be growth in the excavation of iron ore, nickel and bauxite followed by gold and copper. **PSR**

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### Brazil/South America Report

By *Fabio Ferraresi, Director Business Development South America*

#### Brazil Announces Incentives for MHV and LV

The Brazilian Federal Government this month has announced a package of incentives for the automotive sector during a press conference held in Brasilia (DF). The program intends to bail out the country's automakers at a time of weak demand for new vehicles.

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## South America Report

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Fabio  
Ferraresi

The final text includes passenger cars, Minivans and SUVs, Trucks and Buses through discounts granted to the consumer, and not by tax reduction to automakers, as was expected.

Total spending of Federal Government is US\$ 300 Million (R\$ 1.5 Billion). Funds are expected to come from the return of taxes on diesel sales, which was planned to happen in January 2024, but it is anticipated to meet the program of the automotive sector.

For passenger Cars, Minivans and SUVs, discounts range from US\$ 400.00 (R\$ 2.000) to US\$ 1,600.00 (R\$ 8.000,00).

For commercial vehicles it varies from US\$ 6,000.00 (R\$ 30.000,00) to US\$ 20,000.00 (R\$ 100.000,00).

Of the total resources available to fund the program, R\$ 500 million will be allocated to businesses involving automobiles. R\$ 700 million will be allocated to businesses involving trucks and the remaining R\$ 300 million to buses and vans.

To achieve these benefits, car models need to meet the requirements such as energy efficiency, price and 60% nationalization rate of parts.

In the case of heavy, the requirements involve the recycling of models with more than 20 years of use. From the recycling of the used truck, a certificate is issued, and, from it, the consumer will be able to access the bonus.

The idea of removing older trucks from circulation and giving incentives for the purchase of new ones is an old banner of the automakers, which has gained body and proportion with the regulation of the Renovar program.

**Source:** *Automotive Business* [Read The Article](#)

**PSR Analysis.** This package of incentives is the continuation of the fleet renewal program started in 2022. Measures could positively impact the LV and MHV markets, but probably won't affect MHV. The operations and bureaucracy involved in truck and bus recycling are causing us to wait and see the actual effects of the incentives, rather than changing any projections. The impact on LV was already expected and included in our forecasts.

## XCMG To Produce EV Trucks in Brazil in Two years

XCMG announced plans to produce battery electric trucks in Brazil at Pouso Alegre (MG) plant in two years. Until then, the company expects to build a local network of suppliers and wait for new industrial policies that are expected for the electric vehicle segment.

The current plan consists of starting with the assembly of chassis and cabins at the Minas Gerais plant with components produced by local suppliers. Batteries and other components of the electric powertrain will be imported from China.

This first stage fits the company's electric trucks within the scope of Finame, the

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## South America Report

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BNDES credit line that finances the acquisition of machinery and equipment. To access this line, the product to be financed must have a certain percentage of parts and components produced in the country.

While not producing locally, the company starts its commercial operation of the truck market with imported models. XCMG unveiled the E7-49T 6x4 electric truck. The model has the capacity to carry up to 49 tons, has a range of 150 km per full load and was presented for the first time at Agrishow in May.

**Source:** *Automotive Business* [Read The Article](#)

**PSR Analysis.** The main result is another player in the Heavy Duty Market. Initial sales should go for companies that aim to test the solution for learning and meet ESG requirements. The limited range, charge time and lack of infrastructure reduces the market to specific operations of low range and well-defined routes. Low sales volumes are expected, yet it is a good business for importing and selling at high ticket / reasonable margins with minor incremental investment. **PSR**

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## Far East: Japan Report

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

### Hino Motors and Mitsubishi Fuso To Merge

The announced reorganization of several commercial vehicles companies came suddenly and was one that few in the industry expected.

On May 30, Toyota Motor Corporation and Daimler Trucks of Germany announced a business merger between Toyota-owned Hino Motors and Daimler-owned Mitsubishi Fuso Truck and Bus Corporation. The merger is expected to be completed by the end of 2024.

The four companies have reached a basic agreement that calls for Toyota and Daimler to establish a holding company by the end of 2024 with the aim of going

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## Far East Report

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*The Hino and Fuso brands will remain after the merger, and the long-running structure of the so-called "big four" Japanese truck makers will be consolidated into two camps: Hino Motors and Mitsubishi Fuso, and Isuzu Motors and UD Trucks.*



*Akihiro  
Komuro*

public. Hino Motors and Mitsubishi Fuso will become part of the holding company. Toyota and Daimler will hold the same percentage of shares in the holding company, and Hino Motors will cease to be a consolidated subsidiary of Toyota after the merger.

The Hino and Fuso brands will remain after the merger, and the long-running structure of the so-called "big four" Japanese truck makers will be consolidated into two camps: Hino Motors and Mitsubishi Fuso, and Isuzu Motors and UD Trucks.

Hino Motors' engine cheating scandal led to this industry reorganization.

While the problem of Hino Motors' falsification of emission data came to light in March 2022, it was discovered that the fraud had been going on since the early 2000s.

The suspension of domestic shipments of trucks and buses and the damage to the brand caused Hino Motors to post a consolidated net loss of 117.6 billion yen for the fiscal year ending March 2023, its largest ever, and its third consecutive year of net losses.

With Hino Motors still in the investigation stage to determine whether there were any irregularities in the U.S. and other countries as well as in Japan, the question of how Toyota would support Hino Motors, which was in dire straits, had long been an issue.

Under the merger plan, a new holding company would be established and stock of the holding company will be listed on a stock exchange in Japan.

### Source: Diamond Online

**PSR Analysis:** Hino has been in a tight spot since the engine fraud was discovered in March 2022.

The company has lost the trust of its customers, and the MLIT (Ministry of Land, Infrastructure, Transport, and Tourism) has revoked the approval required for engine mass production. The company has posted extraordinary losses, including recall costs, and has been in the red for three consecutive fiscal years.

While having to deal with the fraud issue, the company also has had to work on CASE technology in the truck sector. However, the company has been excluded from CJPT (Commercial Japan Partnership Technologies), a joint venture by Toyota and Isuzu to develop CASE technology for small- and medium-sized trucks. In addition, in April, the company dissolved its technology development partnership with Traton SE, a member of the VW Group.

The development of FCVs and other next-generation technologies is a long-held dream of commercial vehicle manufacturers. A single company alone cannot bear the cost of development, and in that sense, this business integration is an

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## Far East Report

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important milestone for Hino that will determine its future.

There is a limit to how much Toyota alone can support Hino. On the other hand, Toyota is ahead of Daimler in hydrogen technology, and sharing this knowledge with Daimler will accelerate development. This merger is a milestone in brand survival and technological development and is a major crossroad for Japanese truck makers. **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

### 日野自動車と三菱ふそうが経営統合へ

突然の発表で、誰も予期できなかった商用車再編となった。5月30日、トヨタ自動車と独ダイムラートラックが商用車分野で提携し、トヨタ傘下の日野自動車とダイムラー傘下の三菱ふそうトラック・バスを2024年末に経営統合することを発表した。

トヨタとダイムラーが株式公開を目指す持ち株会社を2024年末までに設立し、日野自と三菱ふそうが傘下に入ることで4社が基本合意。トヨタとダイムラーの持ち株会社への出資比率は同じ割合とし、統合後に日野自はトヨタの連結子会社から外れる。

経営統合後も日野ブランドとふそうブランドは残ることになるが、これにより、いわゆる「大型4社」として長く続いていた日本のトラックメーカーの構図は、日野自・三菱ふそうと、それに対するいすゞ自動車・UDトラックスの2陣営に集約されることとなった。

この商用車再編に結びついたのは、何といても日野自のエンジン不正問題だ。2022年3月に発覚した日野自による排ガスデータの改ざん問題は傷口が大きく広がり、2000年代初頭にまでさかのぼって不正が続いていたことまで判明してしまった。トラック・バスの国内出荷停止やブランドの毀損によって、日野自の2023年3月期の連結最終赤字は1176億円と過去最大の赤字となり、最終赤字は3期連続となっていた。国内だけでなく米国など海外での不正の有無も調査段階にあり、窮地に陥っていた日野自を、50.1%出資する親会社のトヨタがどう支えていくかということは、かねての課題だった。統合スキームは、新たに持ち株会社を設立して日野と三菱ふそうをそれぞれ完全子会社とする。持ち株会社は日本で上場し、トヨタとダイムラートラックの持ち分比率は同割合とする。2024年3月期中の最終契約締結、2024年中の統合完了を目指す。

**PSR 分析:** 日野は2022年3月にエンジン不正が発覚して以来窮地に陥っていた。顧客からの信用の失墜、国交省からはエンジン量産に必要な型式認定を取り消されている。リコール費用をはじめとする特別損失を計上した結果、3期連続の赤字だ。このように不正問題への対応をせざるを得ない一方で、トラック分野におけるCASEへの取り組みも行わなくてはならない。だが、トヨタやいすゞによる中小型トラックのCASE技術を開発する合併会社CJPT (Commercial

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## Far East Report

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*The new plant will be built in Bryan County, Georgia. With a standard production capacity of 30 gigawatt-hours per year, it will be able to supply batteries for approximately 300,000 EVs.*

Japan Partnership Technologies) からは除名されている。さらに、4月にはVWグループ傘下のトレイトンとの技術開発の提携も解消した。

FCVの開発はいわば商用車メーカーの悲願と言ってもいいだろう。一社単独では開発コストを担えず、その意味で今回の経営統合は日野にとっては今後を左右する重要な節目だったはずだ。トヨタだけで日野を支えていくには限界がある。一方で水素技術においてトヨタは先行しており、こうした知見をダイムラーとシェアすることで、より開発は加速するだろう。ブランドの存亡と技術開発の節目として、今回の経営統合は、日本のトラックメーカーにとって大きな岐路になる。 **PSR**

## Far East: South Korea Report

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

### Hyundai Motor and LG Energy To Build Battery Plant in U.S.

South Korea's Hyundai Motor Group and LG Energy Solutions said they plan to build a joint automotive battery plant in the United States.

They will split the total investment of \$4.3 billion (about 600 billion yen) on a 50-50 basis and plan to start operations by the end of 2025. As conditions for EV subsidies in the U.S. become clearer, several local investment plans are in the works.

The new plant will be built in Bryan County, Georgia. With a standard production capacity of 30 gigawatt-hours per year, it will be able to supply batteries for approximately 300,000 EVs. In addition to Hyundai Motor's dedicated EV plant in Georgia, the plant will also supply batteries to Kia's plant in Georgia and Hyundai Motor's plant in Alabama.

LG Energy decided to supply the batteries to the three plants in Georgia due to the high transportation costs of the heavy on-board batteries.

This will be LG Energy's eighth battery plant in North America. LG Energy has operated or built two of its own plants, plus three joint ventures with GM, and one each with Honda and Stellantis.

The U.S. government subsidizes U.S.-made electric vehicles to improve the supply chain in the country. With the U.S. government subsidizing U.S.-made EVs, there has been a flurry of plans to build battery plants in the North American region.

**Source: The Nikkei**

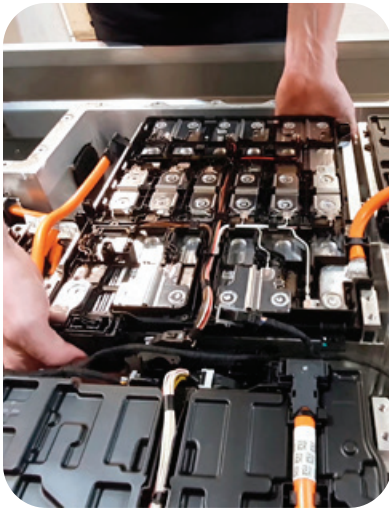
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## Far East Report

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**PSR Analysis:** The U.S. EV subsidy policy is so large that many automakers and battery manufacturers, including South Korea, are aggressively expanding their plants in North America because it is price competition in North America will be heavily influenced by whether or not they are eligible for these subsidies.

At the same time, however, I believe that overinvestment in battery supply capacity is possible. Every month I see reports of battery plants being built somewhere in the world, and while various types of next-generation vehicle technologies, such as PHVs and FCVs, are being considered for development, the European-led policy centered on BEVs is currently leading the world. However, BEVs are not a perfect solution. Issues such as materials sourcing and disposal of used batteries remain.

Even if the trend toward BEVs continues, the automotive battery industry may face structural overcapacity and fierce competition. While large battery manufacturers may be able to secure enough orders to fill their own production capacity, medium-sized and smaller companies will be at risk of being eliminated. Chinese and Korean battery manufacturers, which are more likely to receive full support from their own governments or have large capital resources, are likely to absorb most of the demand. **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

### 現代自とLGエネ、米国に電池合弁工場 6000億円投資

韓国の現代自動車グループとLGエネルギーソリューションは5月26日、米国で車載電池の合弁工場を建設すると発表した。総投資額43億ドル（約6000億円）を折半で負担し、2025年末の稼働を目指す。米国のEV補助金の条件が明らかになる中で、現地での投資計画が相次いでいる。

米ジョージア州のブライアン郡に新工場を建設する。生産能力は標準的な年30ギガワット時で、EV約30万台分の電池を供給できる。現代自が建設中のジョージア州のEV専用工場のほか、起亜のジョージア工場と現代自のアラバマ工場にも供給する。重量の大きい車載電池は運送コストがかさむため、3工場に供給しやすい同地に決めた。

LGエネにとっては北米8カ所目の電池工場となる。自社工場を2カ所、GMとの合弁3カ所、ホンダ、ステランティスとも1カ所ずつ合弁工場を稼働・建設している。現代自とはインドネシアで合弁工場を建設しており、米国は世界2カ所目の合弁となる。

米政府は同国製のEVに対して補助金を支給してサプライチェーンの国内整備を進めている。主要部材の車載電池も米国製であれば満額の補助金対象となるため北米地域での電池工場の建設計画が相次いでいる。

**出典：日経**

**PSR 分析:** 米国のEV補助金政策は規模が大きく、この補助金の対象に含まれるかどうか、今後北米における価格競争に大きく影響することが予見されるため、韓

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## Far East Report

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*Indonesia's greatest strength is its abundance of nickel, which is used in car batteries. It is said to have the largest nickel reserves in the world, and investment in this resource is growing rapidly.*

国をはじめ多くの自動車メーカーと電池メーカーは北米に工場を積極的に展開しようとしている。

だがその一方で、電池供給能力への過剰な投資はリスクもはらんでいる、と筆者は考えている。毎月のように世界のどこかで電池工場の建設の報道を目にする。PHVやFCVなど、様々なタイプの次世代自動車の技術が開発検討されていく中で、欧州が主導してきたBEVを軸にした政策は現時点で世界をリードしている。だが、BEVは完璧なソリューションではない。材料の調達、使用済みバッテリーの処理方法など、課題は依然残ったままだ。欧州にはこうした政策を見直す雰囲気もある。BEVメインの潮流が今後続くにしても、車載電池業界は構造的な生産能力過剰に陥り、熾烈な競争に突入する可能性がある。大手電池メーカーは自社の生産能力に見合った十分な受注を確保できるかもしれないが、中堅以下は淘汰のリスクにさらされるだろう。自国政府の全面的なサポートを受けやすい中国や韓国の電池メーカーか、あるいは大きな資本力を持つメーカーがほとんどの需要を吸収して勝っていくことになるのではないだろうか。PSR

## Southeast Asia: Indonesia Report

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

### Indonesia Plans To Become Major Player in Car Industry

Amid the global shift to EVs, Indonesia is vying to become the new leader in this segment.

Indonesia has already surpassed Thailand in passenger car production and has begun full-scale EV production ahead of Thailand. Thailand has begun to defend its position as the auto manufacturing hub of Southeast Asia by offering preferential policies for EVs, including subsidies for both domestic production and sales.

Indonesia's greatest strength is its abundance of nickel, which is used in car batteries. It is said to have the largest nickel reserves in the world, and investment in this resource is growing rapidly. In April, the Indonesian government announced that it was considering investing in a nickel production venture involving Ford of the United States and that VW of Germany was also considering participation.

The Indonesian government continues to pursue policies to promote EVs: In April, it reduced the value-added tax on certain EVs from 11% to 1%. The tax applies to vehicles with 40% or more local content, including raw materials and labor, to encourage domestic production and consumption.

The government is also considering an early review of the system due to complaints from dealers about the system's user-friendliness. The policy will also become more flexible. In response to the policy, the world's major automakers are also active. South Korea's Hyundai Motor and China's SGMW started EV production in Indonesia in 2022. U.S. automaker Tesla, which is looking for factory

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## **Southeast Asia Report**

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sites around the world, also is generating significant activity. South Korea's LG Energy Solutions is building a battery plant with Hyundai Motor and expects to begin operations in 2024. China's CATL, the world's largest maker of automotive batteries, will also build a new battery plant.

"Thailand may lose its car manufacturing hub to Indonesia," said an official involved in Thailand's industrial policy. People involved in Thailand's industrial policy do not hide their sense of crisis. In Thailand, Japanese automakers such as Toyota began production in the 1960s, and as the power of Japanese cars expanded, the country's industrial concentration, including its supply chain, grew. The country has been an export base for vehicles destined for Australia, the Middle East and Africa, but the winning formula developed for engine-powered vehicles is no longer applicable against the global shift to electric vehicles.

Thai government officials point out that Japanese manufacturers, who have been working with Thai automakers, are moving slowly. Japanese cars remain popular in Thailand, and expectations for EVs are high. As the country enters a period of EV adoption, the delay in the commercialization of Japanese EVs could become a drag on Thailand's industrial growth.

The Thai government has set a target of increasing EVs to at least 30% of new car production by 2030, and in February 2022 it launched a new preferential policy. The main pillar of this policy is a subsidy of up to 150,000 baht for the purchase of EVs that will be produced locally by manufacturers in the future. Excise tax on passenger cars will also be reduced from 8% to 2%. Pickup trucks, which are popular worldwide for commercial and personal use and still predominate in Thailand, will be exempt from the tax.

The Thai government has announced a five-year investment strategy starting in 2023 that includes a 10–13-year tax exemption for the production of FCVs. Companies producing biofuels will also be eligible for tax breaks. In December 2022, Toyota and CP Group, Thailand's largest conglomerate, announced that they will jointly produce hydrogen from biogas generated from livestock waste and consider using it in FCVs.

### **Source: The Nikkei**

**PSR Analysis:** Competition between Indonesia and Thailand, the largest markets in Southeast Asia, will help boost the competitiveness of Southeast Asia as a whole. While there are significant cultural differences between the two countries, both have large domestic populations and young median ages, and both are expected to experience strong growth as markets.

In particular, Indonesia's mining resources are being closely watched by the world, and the country is aware of this and hopes to accelerate its own development

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## Southeast Asia Report

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*There are concerns about whether Thailand, which has historically had close ties with Japanese car brands, will be able to continue to grow without falling behind Indonesia's moves.*

through more strategic policies. There are concerns about whether Thailand, which has historically had close ties with Japanese car brands, will be able to continue to grow without falling behind Indonesia's moves. Since it is not possible to suddenly change its industrial structure, Thailand will likely continue to support the consumer market with tax breaks and attract investment with subsidies for some time to come. **PSR**

## 東南アジア > インドネシアレポート:

小室 明大 – 極東及び東南アジア リサーチアナリスト

### インドネシア、車産業の盟主狙う EVシフトでタイは防戦

世界的なEVシフトの中、インドネシアが新たな盟主の座をうかがう。すでに乗用車生産台数ではタイを抜き、EVの本格生産も先行して始まった。タイは自国生産と販売補助金をセットにしたEV優遇策を打ち出すなど東南アジアの自動車生産ハブの地位死守に動きはじめた。

インドネシア最大の強みが車載電池で使用されるニッケル資源の豊富さだ。世界最大の埋蔵量ともいわれ投資が急増している。同国政府は4月、米Fordが参画するニッケル生産事業への投資について、独VWも参画を検討していることを明らかにした。インドネシア政府はEV振興政策を継続的に打ち出す。4月から、一部のEVにかかる付加価値税を11%から1%に引き下げた。原材料や労働力などの現地調達率が40%以上の車両を対象にし、消費と同時に国内生産を促す狙いだ。ただ、販売店から制度の使い勝手への不満があることから早期の見直しも検討している。政策も機動性を高める構えだ。

政策に呼応し世界大手の動きも活発だ。韓国の現代自動車や中国のSGMWはすでに2022年にインドネシアでのEV生産を始めた。世界で工場用地を探している米テスラにも秋波を送る。韓国のLGエネルギーソリューションは現代自と電池工場を建設中で2024年にも稼働する見通し。車載電池世界大手の中国・CATLも電池工場を新設する。

「インドネシアに車生産のハブを奪われるかもしれない」。タイの産業政策に関わる関係者は危機感を隠さない。タイは1960年代からトヨタ自動車など日本車メーカーが生産を開始し、日本車の勢力拡大とともにサプライチェーンを含めて産業集積が進んだ。オーストラリアや中東、アフリカなど向けの輸出拠点となってきたが、世界的なEVシフトを背景にエンジン車で培った勝利の方程式が通用しなくなってきた。

タイ政府関係者は、これまでタッグを組んできた日本メーカーについて「動きが遅い」と指摘する。タイでは日本車人気は依然高くEVへの期待も高い。国内でEV普及期を迎えた中、日本車のEV商品化の遅れがタイの産業成長の足かせになる可能性もある。

タイ政府は2030年に新車生産の3割以上をEVとする目標を掲げ、2022年2月に新たな優遇策を打ち出した。最大の柱が将来的に現地生産するメーカーのEVを対象に購入時の補助金を最大15万バーツ（約60万円）支給する政策だ。物品税も乗用車について8%から2%に減税する。世界的に商用や個人向けに人気でいまだに

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## Southeast Asia Report

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タイが優位のピックアップトラックは免税になる。

タイ政府は2023年から5カ年の投資戦略を発表し、FCVの生産などを対象に10～13年にわたる免税措置を適用すると明らかにした。バイオ燃料の生産企業も減税の対象になる。トヨタは2022年12月、タイ財閥最大手のCPグループと共同で家畜の排せつ物から発生するバイオガスを活用した水素を製造し、FCVへの利用も検討すると明らかにした。EVだけでなく新エネルギー車全体に手を広げ、先行したい考えだ。

タイとインドネシアの競争は激しさを増す。

**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:** 東南アジアにおける最大市場であるインドネシアとタイの競争は、東南アジア全体の競争力を後押しすることに繋がる。両国の間には文化的にも大きな違いがあるが、どちらも国内人口の多さと平均年齢の若さがあり、市場としても強い成長が期待できる。特にインドネシアの鉱山資源は世界から注視されており、インドネシアもこれを自覚し、より戦略的な政策を通じて自国の発展を加速させたい考えだ。日本車ブランドと歴史的にも関係が深いタイではこうしたインドネシアの動きの後塵を拝すことなく、今後も成長を続けていけるかが懸念されている。急に産業構造を変えることはできないことから、しばらくは減税で消費者市場をサポートし、補助金で投資を募るというスタンスを続けていこう。PSR

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## China Report

By Jack Hao, Senior Research Manager - China

### Cummins Accelera Delivers Hydrogen Fuel Cell Truck



Jack  
Hao

Accelera and Shaanxi Auto's Dechuang Future have jointly developed a 31-ton Hydrogen fuel battery residue vehicle. Sixty Cummins Accelera Hydrogen fuel cell driven muck trucks were delivered and put into operation in Shanghai.

It is reported that this vehicle is matched with Cummins 125kW Hydrogen fuel battery engine system and 127kWh Lithium iron phosphate power battery, and uses the 410kW drive motor and AMT automatic transmission with ultra-low system energy consumption independently developed by Dechuang

in the future to form a "new energy power chain," so that the vehicle's power performance indicators such as maximum speed, hill starting ability, climbing ability, loading capacity, etc. are higher than the industry average.

In the two years of cooperation, Cummins and Tec Future have jointly implemented an efficient vehicle energy management strategy to ensure the stable operation of Hydrogen fuel cell engines in efficient areas and reduce ineffective hydrogen consumption.



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## China Report

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The area where the electrical efficiency of the system is more than 45% accounts for more than 70%, which promotes excellent performance of hydrogen consumption per hundred kilometers.

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

**PSR Analysis:** Heavy trucks are a major direction for the application of fuel cells in the transportation field, and fuel cell heavy trucks will be the main promotion and development direction for fuel cell vehicles in the future.

The production and procurement costs of fuel cell vehicles are very high, which limits their development. The overall purchase cost of vehicles is relatively high. The entire industry supply chain, including fuel cells, battery stacks, hydrogen systems, supporting electric drive systems, fuel cell vehicles, and matched power batteries, also has high costs.

Presently, without subsidies, the cost of using vehicles is still very high and has not reached the stage of vigorous development and use.

The overall coverage of a Hydrogen station is relatively low. Compared with a few years ago, there are many more Hydrogen stations now. Whether in the urban demonstration group or in the highway network, many Hydrogen stations have been established in the past two years. The absolute number is increasing, but in the whole market, it is far from meeting the requirements for the large-scale promotion and use of fuel cell vehicles, which is also a pain point restricting the use of terminals.

When fuel cell vehicles are put into social use and there is no fixed use line, there is a question about the layout and site selection of Hydrogen stations. This poses problems for our entire vehicle industry, and also for the development of hydrogen energy.

Another issue is that the overall technical level of the vehicle is relatively low. Currently, our products can only meet specific markets, routes, and needs, and must be continuously improved. **PSR**

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## India Report

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

### Suzuki Moves Aggressively To Regain India Market Share

A key portion of Maruti Suzuki's mid-term goal to achieve 50% overall PV (passenger vehicle) market share is to become the number one SUV seller in the country. This is important for Maruti Suzuki because even though the automaker's market share in the non-SUV segments is more than 65%, its SUV share was only 10.5% in 2022.

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## India Report

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*Maruti Suzuki is focusing on growing the SUV segment, and sets goal of doubling market share to 25% in FY2024 by adding products to portfolio.*

**Source:** *The Times of India* [Read The Article](#)

**Capacity Expansion.** The company is planning to invest Rs 18,000 crore for the Kharkhoda facility in Haryana. This will increase the capacity by one million units. Further, by the end of the decade, Maruti Suzuki plans to invest over 45,000 crore to quadruple production capacity to four million vehicles in order to meet domestic consumer demand and increase exports from India.



Aditya  
Kondejkar

The company plans to launch six EVs by 2030 and it expects its export volumes to grow to 7.5 lakh units by the end of the decade. Maruti Suzuki was the largest exporter of cars. The company estimates that by the end of 2030, exports could reach as much as three-quarters of a million cars, a substantial volume, which is equal to the Suzuki Motor Gujarat capacity.

**Changing Product Portfolio.** Maruti Suzuki is focusing on growing the SUV segment, and has set a goal of doubling market share to 25% in FY2024 by adding products to portfolio.

“Our market share in the SUV segment last quarter stood at 17.5%. With full-year availability of the Grand Vitara, and two new products shortly slated for launch in the compact SUV segment, it is possible to increase our market share to 25% in this category,” says Shashank Srivastava, senior executive director of marketing and sales at Maruti Suzuki

**Expansion of service network.** The corporation added 310 service touchpoints in 2022–2023, a record high for a fiscal year. Also, the company plans to construct 1,000 service workshops by March 2025. It currently covers 2,271 cities and operates 4,500 service touchpoints. **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 have maintained a presence in Russia since 2013 to bring important updates to our clients about the powered equipment markets within Russia. We are monitoring the current situation on a daily basis and hope to again establish this presence when the conflict with Ukraine is resolved. Please contact us at [info@powersys.com](mailto:info@powersys.com) if you have questions regarding business conditions in Russia. Thank you.* **PSR**

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