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DOMESTIC

1. FAME-2 / ALTERNATE FUEL VEH TECH / MARKET UPDATES

NEARLY HALF OF FAME ELECTRIC 2-WHEELER SALES BASED ON FALSE CLAIMS: REPORT

An investigation done by ARAI found several firms depending on imports for key parts such as electric motors, controllers, and onboard chargers

2 min read Last Updated : May 30 2023 | 11:55 AM IST

Nearly every second electric two-wheeler sold under the government's electric vehicle promotion scheme was based on false localisation claims, according to a report in The Economic Times. This has led to the Centre slashing its official sales tally.

The number of FAME-II (Faster Adoption and Manufacturing of Electric (and hybrid) vehicles in India phase-II)scheme beneficiary two-wheelers was cut from some 989,000 to 564,000 by the Ministry of Heavy Industries.

The FAME-II scheme envisioned providing subsidies to one million electric two-wheelers by 2024. An investigation by the Automotive Research Association of India (ARAI) found several firms depending on imports for key parts such as electric motors, controllers, and onboard chargers, the report quoted sources as saying. These firms gave false information on the locally sourced content of their vehicles, the sources said.

The FAME-II scheme, which gives subsidies to electric vehicle manufacturers, requires companies to adhere to a phased manufacturing plan (PMP) that prescribes a gradual increase in the local sourcing of parts. This is to ensure that taxpayer funds are used to promote local manufacturing and not to subsidise Chinese imports.

Greaves Electric Mobility, the electric vehicle (EV) arm of listed company Greaves Cotton, is one of the firms that has reportedly not been following the PMP guidelines. The company's stock fell 10.3 per cent on the BSE on Monday to Rs 133.1 following reports that the government has sent the company a notice to recover the money paid as subsidies.

“We are working with the government to better understand any alleged violations and resolve any compliance concerns in this rapidly evolving industry,” a company spokesperson said.

The Centre held back subsidies amounting to Rs 1,400 crore for over 400,000 electric two-wheelers sold under the scheme since April last year, but continued adding these units to its official sales count pending investigation. Now, it has cut these units from the sales tally.

This took place after a lobby, which represents the EV industry wrote to the parliamentary standing committee that the Centre was attempting to "cover up” the shortfall in reaching its targets by including the units for which the subsidies were withheld in its final tally, the report said.

2. MARKET SCENARIO

CAN EVS FILL THE DIESEL ICE SPACE?

All indications are that diesel engines could soon be phased out. But, without meaningful incentives, electric vehicles rushing in to fill the gap in mobility is not a sure bet.

May 30, 2023 04:00 IST

EVs can become the dominant technology to fill the void left by diesel cars and capture high market shares only when EV production and charging infrastructure is ramped up, e-taxis are mandated, and economic instruments are leveraged to make electric more attractive for personal car users. (IE)

By Aravind Harikumar and Himani Jain

Although there has yet to be a decision or policy, the current discourse sends the signal that diesel is not forever. The market trend too says the same. Market share of diesel cars has fallen to 18% today, from 48% in 2014. The Council on Energy, Environment and Water (CEEW) estimates show that there could be at least 96 lakh diesel four-wheelers on the road in 53 million-plus Indian cities (as per census 2011) by 2027. Will all these users end up using EVs? Indian consumers have high expectations set by a domestic manufacturing industry that has evolved since the 1940s to produce world-class vehicles with high performance, top durability and low costs. It won't be a cakewalk for the nascent EV industry to corner all this demand. Indian consumers are still apprehensive about EVs due to the limited availability of models, limited charging infrastructure, limited range of available vehicles and unclear economic benefits.

The following five ways are how the EV sector can capture the highest share of the diesel pie, while ensuring just, equitable and inclusive mobility in our cities.

First, manufacturers must ramp up EV production. About 33,000 EVs were sold in 2022. In the same year, about 6.3 lakh diesel cars and a total of 33 lakh cars were sold in India. TATA Motors, the largest electric car manufacturer in India, plans to ramp up its EV production capacity to 1 lakh by 2024. Similarly, all other industry players have to increase production capacities with multiple electric car models with a varied range of functionalities at competitive prices. Significant expansion in the production of EVs can remove the supply constraint as a barrier restricting EV uptake amid the phasing down of diesel cars.

Second, state governments must establish effective charging infrastructure in urban areas. The ETAC report states that 60-70% of India vehicle owners in India do not have access to dedicated parking for charging. A large-scale transition, especially in the four-wheeler segment, calls for reliable fast-

charging infrastructure. Only 15% of the publicly accessible chargers at the end of FY 20-21 were fast chargers. ETAC estimates more than 10,000 charging stations to come up in India by 2025. As this expansion is mainly spearheaded by central government initiatives, 94% of these are expected to come up on national highways and not urban areas. As the reduction of diesel cars can mainly be expected in urban areas, accessible public charging infrastructure to match the levels of petrol/diesel refuelling infrastructure is imperative to nudge consumers to buy EVs over petrol and CNG. States will have to take the lead in effective charging infrastructure development in cities.

Third, introduce EV mandates for taxis. With the presence of aggregators like Uber and Ola, governments can easily bring in EV mandates. The government of Delhi's intention is the same, using the Motor Vehicle Aggregator Scheme (2023). Other states can learn from the Delhi experience to use regulations to fast-track EV adoption in the taxi segment.

Fourth, leverage economic instruments to make EVs more attractive. Scrapping-linked EV incentives will increase their chances of being purchased by those phasing out old diesel vehicles. The CEEW-CEF 2023 study shows that state EV policies that incorporate consumer incentives saw 2X market growth compared to states without such incentives. Hence, it is essential to build incentives for use cases where EVs lack economic parity such as personal car segments. Simultaneously, economic instruments like taxation, and location or time-based restrictions can make EVs more attractive than petrol/CNG vehicles.

Finally and most importantly, build the capacity of State Transport Undertakings (STUs) to combat congestion and offer affordable mobility with e-buses. E-bus penetration is impressive at 7% of the total buses sold in 2022. Comparatively newer city transport undertakings like Lucknow and Kanpur have already transitioned about 42% and 35% of their bus fleet to electric, respectively.

However, CNG buses still remain a popular fuel choice for city buses. Due to nascent technology related apprehension, 90% of the 2,454 e-buses in India are procured and run in a leasing model by STUs. Thus, these authorities continue to depend on OEMs and service providers for operating e-buses and still end up facing issues with effective charging due to poor scheduling. Bus agencies need to augment their know-how on charging, maintenance and scheduling practices to build robust public transport in the long run.

Diesel technology in mobility is anyway phasing out. Policy action will just accelerate this. However, competing petrol and CNG technologies are still here. EVs can become the dominant technology to fill the void left by diesel cars and capture high market shares only when EV production and charging infrastructure is ramped up, e-taxis are mandated, and economic instruments are leveraged to make electric more attractive for personal car users. Most importantly, STUs must augment their capacity to ensure that e-bus transition provides the scale and extent of affordable services, essential for vulnerable urban poor.

CV MAKERS BEEF UP OPERATIONS TO LEVERAGE RECORD INDUSTRY VOLUMES DURING FY24

According to ICRA, total investments made by the CV industry were estimated at nearly Rs 3,200 to Rs 3,500 crore during last fiscal, and a similar amount is expected for FY24 as well

AVISHEK BANERJEE MAY 29, 2023 / 05:47 PM IST

Anticipating all-time high sales volumes in FY 2024, Commercial Vehicle (CV) makers including Ashok Leyland, Tata Motors and VECV are looking to step up investments to strengthen their lineups, develop green products and improve production.

Ashok Leyland Limited has charted out a capital expenditure plan of up to Rs 750 crore for the current financial year, led by new product development, capacity debottlenecking and electric Light Commercial Vehicle (e-Dost) rollout.

The flagship company of Hinduja Group, which had spent Rs 500 crore during the last FY, is increasing investment because it is optimistic about industry prospects.

Shenu Agarwal, Managing Director of Ashok Leyland, expects 10 percent growth in industry volumes over last year.

“The steel, cement, and mining industries are also expected to bolster the medium and heavy commercial vehicle (M&HCV) sales segment for this year,” Agarwal said.

Citing a research report, he stated that demand for higher load carrying capacity vehicle segment products such as multi-axle vehicles tippers and tractor trailers are set to grow as well in FY24.

When asked about the ramp-up in production, Agarwal maintained that the company has sufficient capacity visibility for the next two to three years, so a significant portion of capex would be spent on debottlenecking engine plants.

Recovery underway

Tata Motors revealed that it has drawn up a blueprint for spending Rs 8,000 crore across the Passenger Vehicle, Electric Vehicle and CV segments this fiscal. The company didn't share its capex specific to the CV vertical.

"We are clearly starting to see sequential improvement in our market shares since October and by March it's been increasing in all the categories barring intermediate and light commercial vehicles, where we still have work to do to increase portfolio," said P.B. Balaji, Chief Financial Officer of Tata Motors, in a post Q4 earnings call.

He added, "The underlying demand in terms of infrastructure investments, (operators) wanting to renew their fleet, ensuring the e-com business continues to move, etc., point to pretty much everything (to) CV ecosystem is likely to come back sooner."

VE Commercial Vehicles Limited (VECV) , a joint venture between the Volvo Group and Eicher Motors Limited, is planning to invest Rs 750 crore this year for business growth and aims to increase truck and bus volumes to meet the growing demand.

"We continue to spend on our future initiatives and in the current year our investments would be for (development of) new products as well as (for establishing) additional paint shop at Bhopal plant. And, of course, further capacity expansion towards our engine unit and a components plant. So, therefore, we are continuing to invest heavily on our future," Vinod Aggarwal, Chief Executive Officer of VECV, said at a recent media briefing.

As per data shared by ICRA, the total investments made by the CV industry were estimated at nearly Rs 3,200 to Rs 3,500 crore during last fiscal, and a similar amount is expected for FY 2024 as well. The research agency claims that the amount will primarily be deployed towards development of new

products and alternative fuel powertrains and regulatory compliance such as meeting emission and safety norms.

However, since adequate capacity is available for manufacturing, investments for enhanced output are expected to be limited.

Brighter prospects ahead

ICRA also revealed that the Total Industry Volumes (TIV) in the domestic CV industry stood at 960,000 units and is poised to grow by 7-10 percent to 1.03-1.06 million units in FY 2024. The growth is expected to be broad-based, but to be led by the truck segment largely in terms of volumes, as per ICRA.

According to ICRA, the M&HCV segment is expected to drive the volumes with 8-10 percent Year-on-Year growth expected in FY 2024, supported by a pickup in construction, mining and infrastructure activities as well as healthy replacement demand.

The growth in the LCV truck segment at 4-6 percent while it will continue to be supported by last-mile transportation requirements, would be lower given the high base effect, as per ICRA.

“The growth is expected to be led by various factors such as government infrastructure spending, replacement demand, resumption of schools and offices, and e-commerce expansion,” Sruthi Thomas, Assistant Vice President & Sector Head - Corporate Ratings, ICRA Limited, told Moneycontrol.

She also said: “Additionally, the implementation of the scrappage policy from April 1, 2023, with government vehicles older than 15 years to be mandatorily scrapped, may provide an additional fillip to replacement demand.”

Check your money calendar for 2023-24 here and keep your date with your investments, taxes, bills, and all things money.

NUEGO STARTS INTER-CITY ELECTRIC BUSES IN THESE CITIES IN SOUTH INDIA

TIMESOFINDIA.COM | May 29, 2023, 03.49 PM IST

NueGo, an EV manufacturer from GreenCell Mobility today commenced its inter-city electric buses to five South Indian cities. These electric buses will run on Chennai-Pondicherry, Chennai-Bangalore and Chennai-Tirupati routes adding to their successful operations in Hyderabad-Vijayawada and Bengaluru-Tirupati routes.

NueGo electric buses have 12 schedules between the Chennai-Tirupati route to begin with, followed by 12 schedules on Chennai-Pondicherry, and over 30 schedules on the Chennai-Bengaluru route, says the official statement. These buses will start from Koyambedu in Chennai, PRTC Bus Stand in Pondicherry, RTC Bus Stand in Tirupati, and Majestic in Bangalore. Customers can book their seats at an introductory price of Rs 319 per seat in Chennai-Tirupati and Chennai-Pondicherry. Tickets can be booked through the official website or other digital platforms like NueGo app, Paytm, Redbus and Abhibus.

These electric coaches will come equipped with CCTV surveillance, a driver monitoring system, a driver breath analyser and speed limit checks. Other key features include AC, mobile charging points and reclining seats. These electric coaches can run 250 kilometres on a single charge, with the air conditioners on, in traffic conditions, says NueGo.

Launched in 2022, NueGo is operating its services across India, primarily on the Bhopal-Indore, Delhi-Chandigarh, Delhi-Agra, Delhi-Dehradun, Agra-Jaipur, and Delhi-Jaipur routes, in addition to the South Markets.
“We are thrilled to announce the expansion of NueGo’s services in the south with the launch of our operations in Chennai-Pondicherry, Chennai-Tirupati and Chennai-Bangalore. This strategic shift marks our commitment to serving the dynamic growing South market. Through NueGo services, we will bring a paradigm shift to the travel experience with safety, comfort and punctuality

while delivering zero tailpipe emissions," says Devendra Chawla, CEO, GreenCell Mobility.

3. FINANCE

30th May, 2023 13:34 IST

INDIA'S GROWTH MOMENTUM TO CONTINUE IN FY24, SAYS RBI REPORT: KEY HIGHLIGHTS

Global growth is expected to slow down in 2023 and may remain subdued in the medium run, RBI said in its annual report

Image Credit: ANI

On the back of sound macroeconomic policies and softer commodity prices, India's growth momentum is likely to be sustained in 2023-24 in an atmosphere of easing inflationary pressures, said the Reserve Bank's annual report released on Tuesday. It, however, added that slowing global growth, protracted geopolitical tensions and a possible upsurge in financial market volatility following new stress events in the global financial system could pose downside risks to growth. "On the back of sound macroeconomic policies, softer commodity prices, a robust financial sector, a healthy corporate sector, continued fiscal policy thrust on quality of government expenditure, and new growth opportunities stemming from global realignment of supply chains, India's growth momentum is likely to be sustained in 2023-24 in an atmosphere of easing inflationary pressures," it said.

Here are the key highlights from the RBI's Annual Report:

- Amidst strong global headwinds, the Indian economy is expected to have recorded a growth of 7.0 per cent in real GDP in 2022-23
- Agriculture and allied activities were resilient in 2022-23, with gross value added (GVA) registering a growth of 3.3 per cent

- Uneven spatial and temporal distribution of the southwest monsoon (SWM) led to a marginal decline in kharif foodgrains production
- The production of kharif oilseeds, sugarcane and cotton was higher during the year
- Rabi acreage expanded during the year for most crops and the prospects of rabi crop production, both foodgrains and oilseeds, remain promising, notwithstanding some damage due to unseasonal rains in some parts of the country in March 2023
- In the industrial sector, manufacturing activity withstood global spillovers, while electricity generation exhibited robust growth
- When inflation surged as a consequence of the war in Ukraine, the Monetary Policy Committee (MPC) accorded priority to price stability in the conduct of monetary policy
- As inflation spiked to 7.0 per cent in March 2022 and the MPC sensed that the near-term inflation outlook would deteriorate sharply amidst geopolitical tensions, it raised the policy repo rate by 40 bps to 4.40 per cent in an off-cycle meeting held in May 2022
- The Reserve Bank adopted a nuanced nimble footed approach to liquidity management in sync with the change in the stance of monetary policy or gradual reduction in the size of surplus liquidity in the system
- Global growth is expected to slow down in 2023 and may remain subdued in the medium run
- Globally, disinflation efforts are expected to take down headline inflation from 7.3 per cent to 4.7 per cent in 2023 among AEs, and from 9.8 per cent to 8.6 per cent among emerging market and developing economies (EMDEs)
- With policy tightening by global central banks having moderated, the US dollar is likely to depreciate, easing pressures on currencies of other AEs and EMEs even as the outlook for capital flows to EMEs remains uncertain

4. COAL SECTOR

INDIA EYES COMPLETE SELF-SUFFICIENCY IN THERMAL COAL PRODUCTION BY 2026: MINISTER

1 min read **Saurav Anand**29 May 2023, 05:20 PM IST

Minister Joshi underscored the nation's substantial growth in coal production, rising from 500 million tonnes in 2014 to become the world's leading coal producer and importer.

India has achieved a production of 850 million tonnes this year.

New Delhi:India is advancing steadily towards total self-sufficiency in thermal coal production by 2025-26, Union Minister of Coal and Mines and Parliamentary Affairs, Pralhad Joshi said on Monday.

Speaking at the inauguration of the 1st Mining Startup Summit at IIT Bombay in Mumbai, Joshi underscored the nation's substantial growth in coal production, rising from 500 million tonnes in 2014 to become the world's leading coal producer and importer. India now boasts the fourth largest coal reserves globally and has achieved a production of 850 million tonnes this year.

Reflecting on the significant strides taken in the coal sector in the last nine years, the minister emphasized the government's transformative efforts. He said, "A lot has changed in these nine years. Stability and ability have added respectability to India."

The summit was an incubator for 82 startups, drawing 140 participants. Joshi highlighted the critical role of innovation in reducing import dependence, cutting surging costs, and mitigating foreign expenditure.

Pointing to the sustainable and optimal mining technology's significance, Joshi identified startups as vital partners to this cause. He praised the government's commitment to industry and businesses, focusing on the objective to channel revenue generated from this support to benefit society's economically weaker sections.

Joshi encouraged public sector undertakings (PSUs) to invest in products from startups, promoting innovation and partnership.

The summit aimed to bolster interactions between startups and the ministry of mines. The forum promotes conversations on how startups, armed with diverse technologies, can enhance exploration and mining activities, bolstering sector efficiency and capabilities. The event also offers a stage for engagement with top mineral exploration industries, financial institutions, and banks.

INTERNATIONAL

5. MAN GLOBAL

MAN ENGINES APPROVES ENGINES FOR USE WITH REGENERATIVE DIESEL/HVO

ON 30TH MAY 2023ENGINES

According to MAN Engines, all off-road engines from the current product portfolio can be operated with regenerative diesel – also known as HVO (hydrogenated vegetable oil) – in accordance with the EN15940 standard in Europe or the US specification ASTM D975.

The approval applies to all off-road engines for the current EU Stage V and EPA Tier 4 emission standards and below. Marine engines for regenerative diesel have already been approved. Customers can use it to replace – or mix – conventional diesel fuel and use MAN engines with so-called green or renewable diesel.

This is obtained on the basis of waste and residues of animal and plant origin, cellulosic biomass materials such as crop residues, among others.

“Sustainability is very important to us at MAN Engines. That’s why we’ve approved almost our entire engine portfolio for the use of regenerative diesel,” says Mikael Lindner, head of MAN Engines. “By burning regenerative diesel, engines emit up to 30% less particulate matter and up to about 10% less nitrogen oxides (NOx). Above all, regenerative diesel ensures clean combustion with up to 90% less greenhouse gas emissions in the exhaust gas compared to conventional diesel.”

For Werner Kübler, head of engineering at MAN Engines, there are also other clear advantages: “There are no performance losses or disadvantages with regard to the service and maintenance intervals of our MAN engines, and the AGN also works without any problems. The use of said regenerative fuel has no negative effects either on system components or on the efficiency of the drive system or any existing exhaust gas aftertreatment systems.”

In addition, due to its similar chemical composition to fossil diesel, the use of HVO does not require any modification to existing vehicles or refueling station infrastructure. This can be refueled pure, i.e. 100% as HVO100, or with an admixture – at any mixing ratio – of conventional diesel fuel. At the end of February 2023, the German government decided to include DIN EN 15940 in the 10th Ordinance on the Implementation of the Federal Immission Control Act (BImSchV). This means that these synthetic fuels can be sold in their pure form at public filling stations. In addition to the use of regenerative fuel/HVO, the aforementioned MAN off-road engines are also approved for R33 fuel, which contains 33 percent of regenerative components. Of these, 26 percent are hydrogenated vegetable oil (HVO) and seven percent are rapeseed methyl ester (RME). The remaining 67 percent is made up of high-quality diesel fuel in accordance with DIN EN590.

6. SCANIA GLOBAL

SCANIA RESHAPES ITS BUS AND COACH BUSINESS

TUE, MAY 30, 2023 09:00 CETReport this content

To provide customers with competitive and sustainable mobility solutions and secure profitable growth in a changing market environment, Scania reshapes its bus and coach business. As a result of the new direction, which entails a more focused product portfolio and roadmap ahead, a decision is taken to cease body production for Scania bus chassis at the plant in Słupsk, Poland. Scania continues to offer customers complete buses and coaches, an offer that increasingly builds on our strengths – the modular system, an extensive service network, and strong global and local partnerships with bodybuilders.

The bus and coach market was heavily impacted by the pandemic and although the market has gradually picked up, the pace of recovery is slow, competition is increasing and upcoming legislation requires significant investments in new technology, now and in the future.

“We are convinced that the bus and coach business will continue to be an important part of Scania's offering going forward, but we need an updated strategy that enables us to deliver on our customer promise and secures a profitable business globally,” says Stefano Fedel, Head of Sales & Marketing at Scania.

The updated strategy will support Scania’s customer promise to be a global trusted partner for complete solutions by leveraging the strengths of the modular system, Scania’s service network, and global and local partnerships.

“By using Scania’s experience and wide range of powertrain options, we will provide our customers complete solutions including service, financing, charging solutions, and intelligent transport systems,” says Stefano Fedel.

A focused product roadmap and a leaner, more flexible structure

To deliver on Scania’s customer promise and ensure the ability to better meet market requirements and customer demands, the bus and coach business will

get a leaner structure to improve speed and flexibility. A focused approach to Scania's product portfolio and development ahead means the company will continue to manufacture rear and front engine chassis with broad options of powertrains but discontinue production of Scania Citywide, Scania Interlink, and Low floor-chassis.

Consequently, Scania has decided to close down the part of the plant in Słupsk, Poland, that is producing bodies for Scania chassis. The body production will be gradually ended by the first quarter of 2024. This decision will not affect chassis production in Słupsk nor other Scania entities in Poland.

Complete, sustainable solutions with increased cooperation

With the updated strategy, Scania continues to offer complete buses and coaches in increased cooperation with selected bodybuilders and partners in the industry.

"The majority of Scania's bus and coach business has always been in cooperation with bodybuilders where a high service level and a strong global presence has been achieved with local setups. This successful approach will be further developed, now in even closer collaboration with our bodybuilders and partners to offer our customers complete solutions," says Stefano Fedel.

7. ASEAN COUNTRIES :, SINGAPORE

THE FIRST ELECTRIC SCANIA TRUCK IN SINGAPORE

Singapore's logistics sector recently took delivery of the first battery-electric truck from Scania.

WEBWIRE – Monday, May 29, 2023

The truck acquired by Jasico Express Services, a local transport and freight-forwarding company – was officially handed over and launched at the premises of global logistics company, DB Schenker.

As DB Schenker's transport partner since 1993, Jasico Express Services will deploy the new truck exclusively to support DB Schenker's operations in Singapore.

"We congratulate both companies to be the first movers in the logistics sector to make the transition to the Scania battery-electric truck, for a more sustainable future," said Heba El Tarifi, Managing Director of Scania Southeast Asia.

The new Scania battery-electric truck comprises an L-series cab equipped with a box and tailgate to transport logistics cargo. Its nine lithium-ion batteries, with an installed capacity of 300kW, are capable of peak propulsion of about 295kW, 2,200 Nm and continuous propulsion of about 230 kW, 1300 Nm. The European-standard CCS type 2 plug-in connection carries out direct current charging at up to 130 kW/ 200 A.

Moving forward in sustainability partnerships

"The decision to invest in the new Scania battery-electric truck stems from our strong partnership with DB Schenker and our shared desire to meet its parent Deutsche Bahn green transformation goal for climate protection, nature conservation, resource protection and noise reduction," said Neo Leong Chok, Managing Director and Owner of Jasico Express Services.

"We are thrilled to partner with Jasico Express Services to introduce Singapore's first 25-foot electric truck for the logistics industry," said Catherine Soo, Chief Executive Officer (Singapore and Malaysia Cluster) of DB Schenker.

“This innovative step is a testament to our commitment to carbon neutrality by 2040 and to providing innovative transport solutions for our customers.”

To ensure peak performance, the truck was acquired as a total solution with charging infrastructure, vehicle optimisation and repair and maintenance services.

Electrified transport involves a complex network of interdependent elements, including not just vehicles but also charging requirements. Scania’s global sales readiness process for battery electric trucks is a systematic market-by-market approach focusing on preparing the local market conditions, workshop capabilities and customer profiles

8. THAILAND

BYD, CHINA'S LARGEST EV MANUFACTURER, TAKES AIM AT SOUTHEAST ASIA MARKET

The logo of Chinese electric carmaker BYD at the Paris Auto Show in 2022 | REUTERS

May 30, 2023

BANGKOK – BYD Co., China’s largest electric vehicle manufacturer, has begun to penetrate the Southeast Asian market to challenge the stronghold held by Japanese automakers in the region.

BYD has launched an offensive on Japanese EVs, which hold more than 80% of market share in the region, and is looking to build a formidable presence by expanding its local production line — though it faces issues with product selection and after-sales service.

At the Bangkok International Motor Show in Thailand in March, the largest public exhibition of motor vehicles in Southeast Asia, visitors streamed into the BYD sales booth.

A 21-year-old business owner who decided to purchase one of BYD's vehicles said, "I have a Honda now that costs me up to 8,000 baht ($230) for fuel per month. For the BYD, I'll pay just 1,000 baht in electricity costs," he said.

Fuel efficiency is a crucial factor for consumers when selecting an automobile in Thailand, where the average income is just 15,000 baht per month.

"BYD is reliable because of its achievements (in China)," said a Thai Airways International pilot, 47, who also signed a purchase contract to buy a vehicle at the booth.

During the 12-day run of the motor show, automakers who participated sold roughly 43,000 cars. Toyota Motor Corp. and Honda Motor Co. took the lion's share as the top two sellers, with many other Japanese carmakers ranking in the Top 10. Despite BYD displaying only its ATTO 3 model, it came ninth with about 2,700 sales orders.

Priced at 1.2 million baht, the ATTO 3 is competitive with gasoline-powered cars thanks to subsidies received from the Thai government. In the near future, BYD plans to release two more models, including a compact car, in Thailand.

Visitors admire a BYD Dolphin EV at the 44th Bangkok International Motor Show on March 23. | REUTERS

BYD was founded in 1995 as a producer of batteries for mobile phones, and moved into the automobile industry in 2003. It sold 910,000 EVs in 2022, up nearly threefold from the previous year, and closed in on Tesla Inc. of the United States, which logged a 40% sales gain to 1.31 million units.

Since becoming the dominant player in China, where 300 EV companies have flooded the market, BYD has focused on strengthening its presence in Southeast Asia. It entered Thailand's market in 2022 and is rapidly building sales networks in other Southeast Asian nations in cooperation with local companies.

BYD will expand its product lineup for Southeast Asia by watching how the local market reacts. Liu Xueliang, who heads the company's operation in the region and also serves as president of the Japanese subsidiary, said, "Compared with in China, we still have a long way to go. We would like to add more models as we see how the market responds."

In March, BYD began constructing its first overseas manufacturing plant in the eastern Thai province of Rayong, in a bid to roll out 150,000 vehicles in 2024. In anticipation of the future market potential, the governments of Indonesia, Vietnam and the Philippines, among others, are competing to attract factories.

However, the company is still in the process of establishing an after-sales service network for inspections and repairs. No used EV car distribution market in Thailand exists to meet replacement demand.

A company official said that the market for secondhand cars is unnecessary because BYD sells new vehicles with an eight-year repair warranty. Still, it will be a challenge for the company's future long-term growth strategy.

CHINESE INVESTMENT IN EV INDUSTRIES HELPS BOOST THAILAND'S ECONOMY, SAYS EEC PANEL HEAD

2023-05-30 09:38:15

Visitors view an electric vehicle exhibited during the Thailand International Motor Expo 2022 in Bangkok, Thailand, Dec. 1, 2022.(Xinhua/Wang Teng)

Chinese EV makers like MG and Great Wall have set up their factories in Thailand's East Economy Corridor. China's biggest EV manufacturer BYD and EV startup Neta Auto are also setting foot in the Southeast Asian country.

by Chen Jiabao, Lin Hao

BANGKOK, May 30 (Xinhua) -- The increasing Chinese investment to Thailand, highlighted by electric vehicle (EV) industries, has brought relevant industrial chain and technologies, helping to boost Thailand's economy and green development in recent years, said the head of the country's East Economy Corridor (EEC).

As the major vehicle production and export base in Southeast Asia, Thailand has attracted growing numbers of Chinese electric vehicle manufacturers over the years, echoing Thai government's incentives on EV industry, Chula Sukmanop, secretary general of the EEC policy committee, said during an interview to Xinhua in Bangkok.

"Many Chinese companies have invested in Thailand. Some are coming to meet the demands of domestic market in Thailand and export to neighboring countries. Thailand is expected to export more and more EVs in the future," said Chula.

According to the automobile society of Thailand, Chinese brands accounted for approximately 90 percent of Thailand's EV market in 2021.

Participants attend the groundbreaking ceremony of BYD Passenger Vehicle Manufacturing Base in Thailand, in Rayong, Thailand, March 10, 2023.(Xinhua/Wang Teng)

Chinese EV makers like MG and Great Wall have set up their factories in the EEC. China's biggest EV manufacturer BYD and EV startup Neta Auto are also setting foot in Thailand.

The Thai government wants electric vehicle production to reach about 30 percent of the total auto manufacturing by 2030. Surveys show that the EV sales volume in Thailand surged to nearly 10,000 units in 2022 from less than 2,000 units in 2021. It's expected that the sales volume will double in 2023.

Chula said Chinese EV companies have attracted relative enterprises in the automobile industrial chain to Thailand, including auto parts, ties, batteries and charging stations. It not only creates employment locally, but also brings technology and talent training, contributing to the improvement of Thailand's labor force quality.

The EEC, which covers three coastal provinces east to capital Bangkok, namely Rayong, Chonburi and Chachoengsao, is a centerpiece of government efforts to boost growth and encourage investment, particularly in high-tech industries.

The project focuses on upgrading infrastructures and implementing a series of investment incentives to attract high-value-added industries, as it transitions from those reliant on cheap labor.

A visitor takes photos of a GWM Tank 500 SUV during the 44th Bangkok International Motor Show in Bangkok, Thailand, March 22, 2023. (Xinhua/Wang Teng)

Currently, industries such as petrochemicals, automotive and auto parts, electronics, and appliances have the highest investment shares in the region.

From 2018 to the first quarter of this year, investment from China has accounted for more than 10 percent of foreign investment of the EEC. China has become one of the major investors, according to the secretary general.

He said China contributes a lot to the economic growth of Thailand. In addition to industrial cooperation and foreign direct investment, Chinese tourists have played a significant role in driving the growth of Thailand's tourism as one of the largest source markets.

"Thailand and China share strong ties, not only in investment but also people-to-people exchanges. We had seen some drops in trade activities during the pandemic. But with these ties, I think it's going to recover very soon," said the EEC secretary general. ■

9. GLOBAL OTHERS

THE FOUR MAIN OBSTACLES FACING ELECTRIC CARS

The European Union, the U.S. and China are committed to putting tens of millions of EVs into circulation in the coming years, but there are serious industrial challenges to fulfilling that plan

Production of Togg electric cars in Bursa, Turkey.**MUSTAFA YILMAZ (ANADOLU AGENCY/GETTY IMAGES)**

MAY 29, 2023 - 15:06 CEST

It is increasingly common to see an electric vehicle (EV) driving quietly through the streets. EV sales have increased, even within the eco-luxury market, with electric cars becoming a viable option for more and more people. Today, almost all automotive manufacturers have stakes in the future of EVs. What's more, the vehicles are promoted by authorities as a way to address climate change and curb city pollution. The European Union wants at least 30 million electric cars on the roads by 2030. By the same date, the United States is aiming for half of passenger cars sold in the country to be electric, while China has set a target of 40%.

However, the mass adoption of EVs still faces major obstacles. While the high cost of EVs, the lack of a charging infrastructure and the car's limited autonomy are often cited as the biggest stumbling blocks, there are other

challenges — stemming from how EVs are manufactured — that are also making it difficult for them to take over the roads.

Graphite

In the lithium-ion batteries of electric cars, the negative pole is made of graphite — one of the forms in which carbon is found in nature. It is the only material that is used for this purpose. “Carbon is a material that doesn’t seem very critical. It is very abundant in the Earth’s crust,” explains Belén Sotillo, a Spanish researcher at the Complutense University of Madrid in the Department of Materials Physics. “The problem with batteries is that the graphite that is incorporated has to be processed. And most of the processing plants are in China.” That’s why the European Union has included graphite on its list of critical materials, along with lithium, cobalt, nickel and manganese, which are also components of an EV battery.

Graphite is also the heaviest material in a lithium-ion battery. Its weight varies between 100 and 220 pounds, according to the consultancy firm Kearney. This means that for every 10 million electric cars manufactured, between 500,000 and one million tons of graphite are needed. And currently the global production of graphite — for all its uses — only has the capacity to process one million tons.

Sotillo points out that the search is on for ways to scale up production, but that achieving such a feat is very difficult. Another option is to replace graphite, but that’s not easy either. “Once we have verified that there is an alternative and that it works well, we would have to build the industry,” explains the researcher. “And that is often difficult. You have to move the whole [EV] industry to the new materials.”

Lithium

EV batteries are made of lithium, which, unlike graphite, is found in very small quantities. “Lithium is an element that is not very abundant in the Earth’s crust, so the amount of material that can be obtained to make electric cars is limited,” says Sotillo.

Geoscientist Hannah Ritchie, from the University of Oxford in the United Kingdom, crunched the numbers. It is estimated that there are 88 million tons of lithium on Earth, but only 22 million of them are extractable. According to Ritchie, with these reserves, 2.8 billion electric batteries can be manufactured. It is difficult to know how many EVs there are in the world, but some estimates point to a figure of around 1.4 billion. This does not leave room for many more.

What's more, lithium has other uses, meaning the reserves would not solely be used for EVs.

"The other problem with lithium is that it is an element that tends to be very reactive. Once you have used up the battery, it is very difficult to recover it," explains Sotillo, who says that research is also underway into possible replacements. "Sodium or potassium, in a battery technology similar to lithium, are elements that would have a lower capacity to store energy, but are more easily recoverable and are more abundant."


An EV battery recycling plant in Weinan, China.**VCG (GETTY IMAGES)**

Battery recycling

It's also important to keep in mind that an EV battery occupies the car's entire chassis. And it only lasts about 10 years. When the time comes to change it, the recycling odyssey begins. Félix Antonio López, a researcher at Spain's National Research Council (CSIC), points out a key fact: in a recycling plant, dismantling batteries is done by hand, as there are still no automated processes.

"The problems are in the recycling of the internal battery," says López. Inside that battery, there are modules, made up of cells and batteries. "Those batteries are crushed. And then separation operations are carried out, fundamentally aimed at separating plastics and copper. But this process is not perfect. And the result is what we know as black mass." This material is named so due to the dominance of the black graphite, but it also contains nickel, cobalt, manganese (from the cathode), as well as lithium, phosphorus and fluorine (present in the battery electrolyte). Recovering those elements is not easy, and it is also a costly process due to the lack of automation. For now, all black mass is sent to China for recycling.

Scaling up recycling is difficult, says López. The researcher calculates that there may be a productive technology — which can be transferred to companies — within five or six years. From there, it would have to be pushed to an industrial scale, which also takes time.

Energy supply

Mass adoption of electric cars will also place greater demands on the electrical grid. In this scenario, Antonio Gómez Expósito, a professor in the Department of Electrical Engineering at the University of Seville in Spain, says it is important to differentiate between two factors: energy, which has to be produced in power plants, and power, which represents the speed at which electricity is delivered.

“In Spain, there is no significant problem in terms of energy production,” says Gómez. Indeed, at night, the productivity of some thermal and nuclear power plants is reduced because they are not necessary. In other words, there is infrastructure to produce more energy than the country consumes.

The difficulty lies with the power of the electrical network. “If everyone charges their car at peak consumption in the afternoon, as would be logical in principle, there would be a big problem, both in the transportation network and in the distribution network,” says Gómez. “To avoid this, the idea is to encourage cars to charge overnight.”

Even so, in a scenario with millions of electric cars, one would expect problems in the distribution network, which involves medium and low voltage. When electricity is generated in a power plant, it is sent to a substation at high voltage and, from there, it goes to energy transformation centers at medium voltage, which distribute electricity via low voltage wiring to homes and businesses.

“A transformation center can typically serve between 100 and 300 customers. If, of those 300 customers, everyone who had an EV charged the vehicle at the same time — even if they did so at night — the low-voltage distribution network that reaches those blocks of apartments would have to be reinforced,” explains Gómez. And this would be a job that would have to be done at the local level, in cities and neighborhoods.

Coordinating the large-scale charging of EVs and upgrading part of the electrical grid are two other obstacles to the mass adoption of electric cars. All these difficulties will become apparent over time, as EV adoption becomes more widespread.

10. GLOBAL TECHNOLOGICAL DEVELOPMENTS

ARE ELECTRIC VEHICLES REALLY THE FUTURE?

When it comes to cars, tomorrow can take its good old time in charging ahead

May 29, 2023 | 12:05 am

It's a cloudless spring day, made for a country drive. Chartreuse trees explode with pollen and glow to near neon. I wind past pastures and stone and brick farmhouses and amiable old barns that could set the scene of a Beatrix Potter story, elatedly adding to the hum of provincial enterprise by perfecting my rev-matching skills over the rolling hills and 8mph switchbacks that mark PA-74.

The quiet two-lane road spits me out into city limits, and suddenly I'm crawling through a crowd at the Carlisle Collector Car Auction.

I'm here to learn what classic car enthusiasts…

I'm here to learn what classic car enthusiasts think of electric vehicles, or EVs. In 2021, President Biden issued an executive order establishing that, by 2030, half of new passenger cars sold must be all-electric or hybrid, going up to two-thirds by 2032. California plans to outlaw the sale of internal combustion engine (ICE) vehicles completely by 2035. Yet the data-analytics company J.D. Power reports that today, EVs "account for less than 1 percent of the 250 million vehicles, SUVs and light-duty trucks sold in the United States." In 2022, EVs accounted for just 6 percent of new car sales, despite a $7,500 "clean vehicle" tax credit intended to incentivize consumers to buy electric and hybrid vehicles.

In the shade of a turquoise Ford Fairlane's three-foot-long tailfin I ask Gary, from upstate New York, his views.

"We don't have the electric structure to charge where I live," he says. "If everybody charged their electric vehicle right now, we wouldn't have heating or cooling in our houses."

Gary has worked in construction for more than forty years and is concerned about battery waste and how we'll mine all the lithium we'll need for an electric future. "You need diesel machines to mine. I've run a lot of equipment, and you couldn't go more than twenty minutes with an electric bulldozer."

What's more, Gary is a shade-tree mechanic. His idea of working on an EV? "Not fun. What's fun about it? You'd need a schematic. I can buy an engine or transmission real cheap, and I can fix it myself."

Gary finds comfort in his conviction that "Big Oil is not going to stop buying from those sheikhs in Saudi Arabia."

I turn to a pair of Virginia men admiring a sensational 1970s-era Cadillac Coupe de Ville convertible the color of pea soup — with a matching interior. "I seen a lot of them electric cars catch fire," one says with a shrug. "I guess they both got their problems."

I size up the Cadillac's all-business chrome grill, its sharp chrome bumper and chrome accents, stylized skirt and endless angles, and I think: at least if this thing caught fire, it would take *ages* to burn up.

Someone who calls himself "the Hillbilly Hoarder" tells me he hopes gas-powered cars become rare and collectible — for obvious reasons. Then Charles Brandon Boyd, a gregarious car dealer from North Carolina with an eagle eye for people wandering car lots in search of something, politely intervenes to share some industry secrets.

Boyd, wearing a Chevrolet polo shirt with the EV emphasized in contrasting thread, has just returned from all-day meetings in Las Vegas with Chrysler, Dodge, Jeep and RAM "to talk about the conversion we're getting ready to see from ICE to EV, and before that, we met with General Motors about the same thing.

"The problem with General Motors," says Boyd, "is that $26 billion has been spent, and they only have around 2,000 electric vehicles on the road today. The math isn't working right now."

Boyd says car manufacturers are experiencing "a lot of R&D struggles. This is new to everybody. The rollout is so fast. Is it premature? Absolutely it's premature. Are we ready for this? There's no way we're ready for this. It's an exciting time to be alive, and as a car dealer, I'm for this — the *right* way. Not a cram job. Not push, push, push, push."

It seems American drivers are themselves duly skeptical of EVs. A University of Chicago Energy Policy Institute poll released in April found just “two in five would consider purchasing an electric vehicle as their next car,” with 80 percent of respondents citing a lack of charging stations as a main reason. The prohibitive cost of EVs, which are 20 percent more expensive, on average, than ICE vehicles, was another big discouraging factor.

Boyd asserts that customers are curious about EVs, but he doesn’t have any to sell. Chevy has ended production of the Volt. Ford’s electric truck, the F-150 Lightning, was on a stop sale for a month this year because of a potential battery problem.

A lot of EV fever, says Boyd, “is Washington and administrative-driven,” yet bureaucrats are trying to put the car before the horsepower.

“You can have all the EVs you want, but if you don’t have a place to get power and charge them, what’s the point in having them? We don’t have the infrastructure, the grid. Transformers in neighborhoods don’t have the capacity to charge them.”

“Range anxiety,” as it’s known, “is alive and well,” adds Boyd, “and that’s the number-one question and concern I hear about EVs.”

Andy Campbell knows more about range anxiety than possibly anybody in the US. As the head of PR and marketing for DiamondBack Covers, a truck-bed cover manufacturer Andy describes as “early adapters at heart, techy and forward-thinking,” he volunteered to test out the company’s electric truck (a 2022 F-150 Lightning Lariat) with a family road trip from Pennsylvania to California with his wife Rebecca and three-year-old son Oliver.

“It was going to be a twenty-six-day trip,” Andy tells me from the passenger seat of the Lightning. “Within an hour, we thought about turning around and me dropping [my family] off. I offered Rebecca a flight home multiple times.”

Crossing Pennsylvania’s Laurel Highlands, the Campbells watched the Lightning’s range deplete in real time. “The range would drop by three miles, and you only went a quarter-mile uphill,” Andy recalls. “If you have a high resting heart rate, this truck will drive you over the edge.” He offers as an analogy the feeling of seeing your iPhone’s battery turn yellow. “Imagine that, on your car, but in the middle of the desert.”

Within three hours of starting their trip, the Campbells found themselves in a hotel, because the only nearby charging station provided them just seventeen miles of range per hour of charge. Andy didn't plan their route around charging stations on the way out, "because I didn't think it would be that problematic. On the way home, that's all I planned around."

The journey west involved a lot of time spent at Walmarts using Electrify America charging stations that provide a power supply just for EVs from a gated-in transformer. These chargers are "pretty good," says Andy, but there are "crappy chargers everywhere" because so few people are driving EVs, and "even if you know it's horrible, it's still better than nothing.

"Every charger is green or orange and fluorescent and ugly in the middle of a parking lot and it looks like *Blade Runner*," says Andy. The Campbells didn't get to see Lake Tahoe as planned, because there was not a big-enough power station *right there*. They did drive around Park City, Utah, however, and the Lightning performed as a truck should, with plenty of traction in two feet of snow.

I don't know what it's like to fly an airplane, but I imagine it's similar to driving an electric truck: it felt *floaty*, for lack of a better term, and fast. At least, that's what it felt like when I was behind the wheel of the Lightning. When Andy and I trade places, my head hits the headrest when he hits the — battery? "It has independent rear suspension, so every wheel and tire [is isolated]," Andy explains. "It's a big truck, it's heavy, and then it's quiet, and it makes everyone carsick. It just doesn't feel natural."

The Campbells left the Lightning with a partner and Andy retrieved it later, driving back from Utah on his own. It took him nearly five days, "trying as hard as I could to get back" for his dad's birthday. When he made the exact same trip in a Ford F-150 Tremor (with an ICE), driving the exact same way, sleeping in the back of the truck, "never eating, never going anywhere" and following the same route, he made it home in just over thirty hours. As for the birthday celebration, "I failed to make it," he says.

A gas-powered truck with a full tank can conceivably travel 550 miles; the Lightning, with the "extended range" package, is billed as going 320 miles on a full charge, but if it's cold outside, your range drops significantly.

The Lightning, Andy concludes, "is not a road trip vehicle." It takes the spontaneity of exploration out of travel. Each charging stop takes at least

thirty-five minutes, “if you’re lucky, and if you’re not lucky — hours.” What’s more, he muses, “Spontaneity is sometimes forced upon you: my wife is in labor, but my vehicle only has two miles of charge on it.” Andy acknowledges the electric-truck family road trip was “tough,” but he says he’d do it again under different circumstances. “To make it work, you have to be willing to do weird things that typically only a young person would do,” like pull over whenever and wherever and rest in the back.

Climate and energy experts I’ve spoken to have commented on how unrealistic it is to plan on eliminating the ICE and of the dangerous “Cubanization” of the American fleet if manufacturers are forced to go all-electric. (Older cars are inherently less safe.)

I think back to the Carlisle car auction, to the nostalgic smell of gas burning from cars of the pre-catalytic converter era and the rumble and squeal of tuned exhausts. I compare the bloated, marshmallowy form of a Tesla to the swanky curves of a bubblegum pink Ford Thunderbird I fell in love with at first sight. It is an exciting time to be alive, as Charles Brandon Boyd the car dealer said. But I’ll have to attend many more Carlisle Collector Car Auctions before I master my heel-and-toe technique. And my list of sights to see on cross-country road trips is a mile long. As far as I’m concerned, the future can take its good old time in charging ahead.

NOVA BUS TO PROVIDE UP TO 541 LONG-RANGE BATTERY-ELECTRIC BUSES TO THE TORONTO TRANSIT COMMISSION

CNW Group

Mon, May 29, 2023 at 8:30 PM GMT+5:30·3 min read

SAINT-EUSTACHE, QC, May 29, 2023 /CNW/ - Nova Bus, a member of the Volvo Group and a leading North American transit bus manufacturer, announces it has been awarded a base order of 124 LFSe+, with a potential additional order of 12 buses and up to 405 units in option, by the Toronto Transit Commission (TTC). The LFSe+ is the 40' long-range battery-electric bus model of Nova Bus. The buses from the base order will be delivered over a two-year period starting

in 2024. This will be the first order of Nova Bus LFSe+ buses by the TTC. In addition, the order also includes an adoption process for other agencies in Ontario to enter into their own agreements with Nova Bus for up to 550 buses over four years.

Nova Bus logo (CNW Group/Nova Bus)

Over the past ten years, Nova Bus has delivered over 1,300 buses to the TTC, including hybrid-electric buses. With this new order, the all-electric LFSe+ will support the bus fleet electrification efforts of the TTC, which are part of its commitment to be 50% zero emissions by 2030 and 100% zero emissions by 2040 or sooner.

The TTC operates over 156 bus routes with a fleet of over 2,000 buses serving over 111 million passengers on an annual basis (2021 data), making it one of the largest transit agencies in North America. With this order of battery-electric buses, the TTC will continue to be a North American leader in the adoption of zero–emissions technology bus fleets.

This order is made possible by a joint investment of $700 million from the Government of Canada's Zero Emission Transit Fund and the City of Toronto towards the electrification of the TTC's bus fleet. The funding will cover the purchase of battery-electric buses and chargers, and support upgrades related to sites and infrastructure.

Thanks to its long driving range, its reduced maintenance costs as well as the elimination of all pollutants and greenhouse gas emissions (GHG), the LFSe+ is a first-choice vehicle for the transition to sustainable transport. The LFSe+ represents a smart mobility solution combining the Nova Bus LFS platform, a durable, proven structure that facilitates access for people with impaired mobility, with the latest innovations in electromobility and security.

"We are delighted to build on our strong relationship with the TTC for this award of LFSe+ electric buses," stated Ralph Acs, President of Nova Bus. "The TTC has a long history of leading in battery-electric transit solutions and this announcement is in line with the agency's long-term sustainability goals. We couldn't be happier to be part of that journey to support the TTC with its zero-emissions commitment and the City of Toronto's goal of reducing 80% of its vehicle emissions by 2050."

About Nova Bus

Nova Bus, member of the Volvo Group, is a leading provider of sustainable transportation solutions in North America. Its portfolio includes electric, hybrid, CNG and clean diesel buses, high-capacity vehicles, as well as integrated intelligent transport systems. Nova Bus accompanies transit authorities and bus fleet operators in their transition to electromobility with its flagship LFSe+ long-range electric bus, combining the proven Nova Bus structure with the latest innovations in electric drive. Nova Bus is committed to helping reduce greenhouse gas emissions and positively contributing to a greener economy. For more information regarding Nova Bus products and services, please visit novabus.com.

SOURCE Nova Bus

11. GLOBAL JV / BUSINESS EXPANSIONS

JAPAN'S HINO MOTORS, M'BISHI FUSO TO MERGE TO BOOST TECH DEVELOPMENT

KYODO NEWS - 1 hour ago - 17:21 | All, Japan

Major Japanese truck makers Hino Motors Ltd. and Mitsubishi Fuso Truck and Bus Corp. said Tuesday they will merge under a holding company by the end of 2024 to speed up and cut costs of developing advanced safety and environmental technology.

The parents of Hino Motors and Mitsubishi Fuso -- Toyota Motor Corp. and Germany's Daimler Truck, respectively -- signed a basic agreement on integrating their subsidiaries, the two truck makers said.

Global automakers are ramping up investment in connected, autonomous, shared and electric vehicles, known as CASE, to meet stricter emission rules and offer new vehicle services.

It is becoming increasingly difficult for a commercial vehicle maker, which sells fewer vehicles than traditional automakers, to keep up with such a trend on their own, Hino said.

The trucking-making unit of Toyota suffered a record net loss in the fiscal year ended March 2023, stricken by an engine data falsification scandal. Hino booked a massive one-time loss to cover compensation to its customers and suppliers and recall costs.

Toyota and Daimler Truck will establish a holding company and aim to list the new entity.

END