PowerTALK™ News

45 YEARS 1976 · 2021

Published Monthly by Power Systems Research
Data · Forecasting · Solutions™

April 26, 2023 Volume 8 No. 4

Worldwide News & Analysis

In This Issue

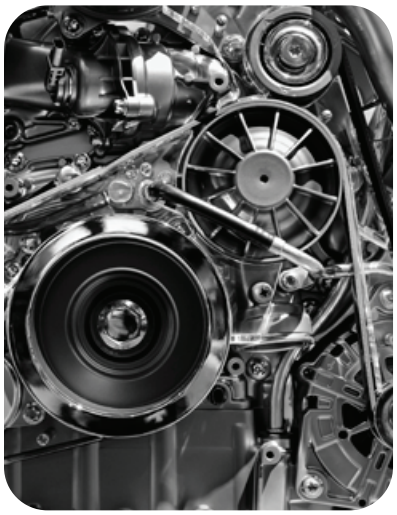
About Us

Power Systems Research (PSR) is a world leader in providing power equipment information, whether it's pure data, analysis, forecasting or specific business intelligence. This product information ranges from IC engines to battery-electric and hybrid powertrain technologies. PSR has been providing world class business and market intelligence to industry leaders for 45 years. How can we help you? For details, call **+1 651.905.8400** or email **info@powersys.com**.
www.powersys.com

Power Systems Research: Data...Forecasting...Solutions

Questions, Comments? Contact Joe Delmont, Editor
jdelmont@powersys.com | +1 651.905.8422 | www.powersys.com

Click Here To Go To Page 1



Alternative Power Report

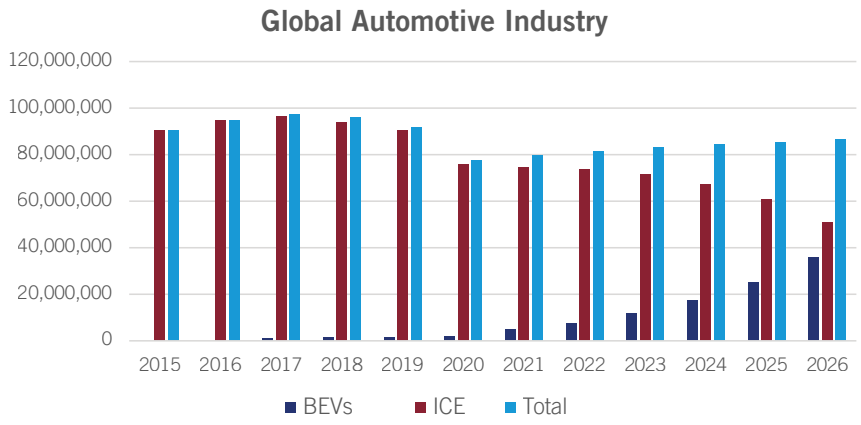
By Guy Youngs, Forecast & Adoption Lead

Global ICE Industry Cliff Is Here

Guy Youngs

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

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



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

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

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

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

Like what you see? To ensure that you continue to receive your complimentary copy of the PowerTALK™ News report each month, Sign up now.

Click Here To Go To Page 1

Alternative Power Report

Continued from page 2

20-Year Changes in Top Construction OEM Hierarchy

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

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

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

Compact Track Loaders Eat into Skid Steer US Market

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

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

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

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

Achieving Peak Efficiency in Diesel Technology

Many leading construction companies now are looking at ways they can reduce their CO2 footprints. With the advent of market-ready electrified powertrains, gas-fueled internal combustion and even fuel cell electric drives, where does the push for CO2 reductions leave diesel power?

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

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

Click Here To Go To Page 1

Alternative Power Report

Continued from page 3

The Power Systems Research Truck Production Index (PSR-TPI) decreased from 108 to 106, or -1.9%, for the three-month period ended March 31, 2023, compared to Q4 2022.

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

Global Report

2022 Truck Production Index (PSR-TPI) Gains 2.9%

By Jim Downey, Vice President-Global Data Products
Chris Fisher, Senior Commercial Vehicle Analyst

Power Systems Research TPI *Truck Production Index*

Download Entire Q1 2023 TPI Report

St. Paul, MN (April 7, 2023)— The Power Systems Research Truck Production Index (PSR-TPI) decreased from 108 to 106, or -1.9%, for the three-month period ended March 31, 2023, compared to Q4 2022. However, the year-over-year (Q1 2022 to Q1 2023) gain for the PSR-TPI was 103 to 106, or 2.9%.

Chris Fisher

The PSR-TPI measures truck production globally and across six regions: North America, China, Europe, South America, Japan & Korea and Emerging Markets.

This data comes from **OE Link™**, the proprietary database maintained by Power Systems Research.

Jim Downey

Global Index: After a decline in medium and heavy commercial vehicle production in 2022, primarily driven by a significant decline in China, MHCV production is expected to increase by 1.8% in 2023 over last year. While the global supply chains have seen significant improvement, lingering problems still exist. The main threat to commercial vehicle production this year is a slowing global economy as inventory levels are reduced and cargo demand slows.

All Regions: Medium and heavy commercial truck production in Europe and North America will continue to be strong through much of the year primarily due to on-going replacement demand for heavy trucks. In Brazil, truck demand is expected to decline this year primarily due to the implementation of the P8 emission regulations last year which resulted in a vehicle pre-buy. In China, demand appears to have stabilized after very low levels of demand in 2022. **PSR**

Click Here To Go To Page 1

Global Report

Continued from page 4

Michael Aistrup

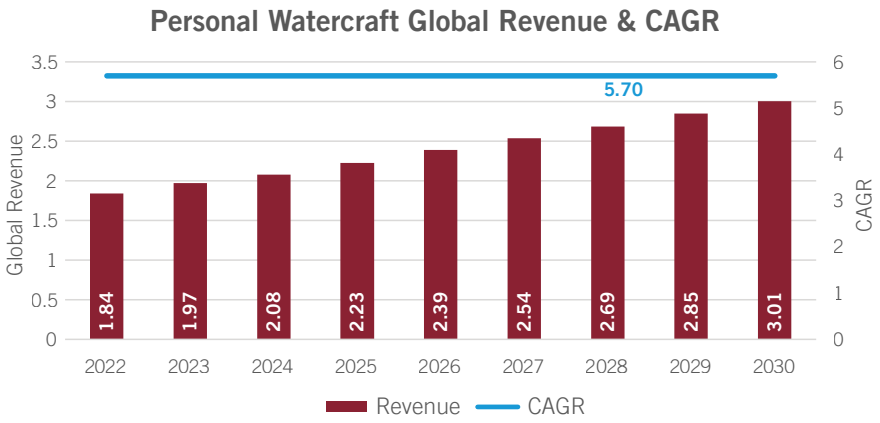
2030 Personal Watercraft Market May Hit US$ 3.01 Billion

By Michael Aistrup, Senior Analyst

Personal watercraft (PWC), often known as a jet ski, is a watercraft that can carry as many as three people. A PWC Sit-Down is defined as a vessel specifically designed to haul up to three riders in a sitting position, one in front of another. A PWC Stand-Up is a type of PWC designed for one rider standing or kneeling on the watercraft.

The PWC has wide uses, ranging from recreation and racing to many types of utility. PWCs are used to help with rescue missions as they are small, fast, and easy to operate. Local and county law organizations use PWCs to ensure the safety and security of persons engaged in watersports.

MARKET SIZE. According to Power Systems Research, the global market size for PWCs is expected to growth at a CAGR of 5.7% between 2022 and 2030. Global revenue for 2030 is forecasted to be $3.01 Billion.



Source: Power Systems Research

DRIVERS. There are several key drivers for the global PWC market ranging from technological improvements to global economic gains. For example:

- **TECHNOLOGY.** Advancements in cleaner and quieter watercraft using new materials and battery power make PWCs more attractive.
- **DISPOSABLE INCOME.** An improving global economy provides more disposable income for consumers.
- **INCREASED RECREATIONAL** opportunities in water sport activities. Multi-passenger PWCs and changing lifestyles driven by the COVID pandemic have increased the desire for water recreation.
- **GROWING DEMAND** by water law enforcement units and corporate applications.

Click Here To Go To Page 1

Global Report

Continued from page 5

- **MORE POPULAR PWC** events and championships are being developed which draw increased attention to PWC use.
- **A RISE** in PWC rental business as pricing of individual units continues to climb.

CHALLENGES. However, several challenges face the PWC segment, including retail pricing and emissions and noise limitations.

- **HIGH COSTS** of PWCs are a continuing concern. The retail purchase price for new units is high and maintenance costs and fuel continue to climb.
- **REGULATIONS** covering emissions and noise restrictions often limit the use of PWCs in urban areas. Many communities near recreational water bodies are enacting strict laws limiting noise and emissions.

GLOBAL TRENDS. While the number of fatalities and accidents associated with PWC use continues to rise, manufacturers are continuing to provide PWC units with advanced safety features and technology. The creation of the multifaceted PWC is a growing area of interest for personal watersports OEMs as they continue to develop safer products.

Producers are focusing on implementing improved technology, such as nanocomposite technology, to develop hull materials, which lowers the weight of the liner, deck, and hull. Using nanotechnology gives end users more control over the way material flows during the molding process. To produce PWCs as economically as possible, OEMs are adding plastic as a key component.

OEMs are putting heavy resources into developing technologically advanced PWCs that cut pollution. Historically, PWCs have been powered by two-stroke engines, but today they are driven by state-of-the-art four-stroke engines.

REGIONAL TRENDS. North America is the biggest market for PWCs, but these units are becoming increasingly popular in Europe and Asia.

- **NORTH AMERICA** is expected to remain the largest market for personal watercraft during the forecast period. The region accounts for more than 80% of the global market. This is largely due to the presence of numerous original equipment manufacturers (OEMs) and the increasing demand for personal watercraft in the region for recreational and sports applications.
- **INCREASING** investments in sports and recreational activities in several European countries is expected to drive the region's personal watercraft market during the forecast period.
- **TOURISM** in Pacific/Asian countries will continue to grow, and this will drive sales and rentals of PWCs.

PSR ANALYSIS. PWCs increasing demand will drive the growth of the personal watercraft market over the forecasted period. However, stringent emission norms and safety regulations could derail some of the growth for the personal watercraft market. **PSR**

Questions, Comments? Contact Joe Delmont, Editor
jdelmont@powersys.com | +1 651.905.8422 | www.powersys.com

Click Here To Go To Page 1

DATAPOINT: *North America ATVs*

288,000

ATV is an abbreviation for All Terrain Vehicle. It commonly has 4 wheels and is designed to be driven off road. It seats one person, or sometimes two, one in front of the other.

By Carol Turner, Senior Analyst, Global Operations

288,000 units is the estimate by Power Systems Research of the number of ATVs to be produced in North America in 2023.

ATV is an abbreviation for All Terrain Vehicle. It has 4 wheels and is designed to be driven off road. It seats one person, or sometimes two, one in front of the other.

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

Market Share: With 28% of total units produced, **Polaris** leads in the production of 4-wheeled ATVs in North America. In second position and third position are **Honda** and **Yamaha Motor** with 22% and 18.5%, respectively.

Export: Mexico exports up to 45% of its production worldwide. The United States exports up to 30% of its production worldwide. Approximately 60% of Suzuki's production in Rome, GA, remains in the US, while the rest is sold internationally.

Trends: In 2022, production of ATVs in North America decreased nearly 5% from 2021. However, production is expected to rebound 5% in 2023. The 2022 decrease was partially COVID-19 related. Other factors included overstock, the uncertain economic outlook, and the growing popularity of side x side units (utility vehicles).

Manufacturers have discontinued less popular models/variants and are concentrating on bestselling units. ATVs are used in many activities that meet recreation, sport and military needs.

Investor relations representatives from **Yamaha**, **Polaris Industries** and **Arctic Cat** forecast increased sales, based on rising consumer discretionary spending and favorable gas prices. Production is expected to increase, considering current economic factors along with the introduction of innovative products and technologies. Look for additional production up to 10% by 2025. **PSR**

Click Here To Go To Page 1

Brazil/South America Report

By Fabio Ferraresi, Director Business Development South America

Fabio Ferraresi

Volvo Tests Renewable LNG Truck

Volvo plans to test trucks fueled by vegetable origin LNG, gas in liquid form. According to the president of Volvo Trucks in Latin America, Wilson Lirmann, gas from renewable waste makes more sense in the transport operation because it contributes to nullifying the emission of CO2 in the fleet of commercial vehicles.

In this sense, the brand should soon bring LNG-powered trucks to the region. Brazil is a focus market, but possibly these trucks will debut in other South America countries. That's because the infrastructure is still under development in Brazil. Although Lirmann does not say which countries in the region will receive the brand's first gas trucks, it is known that Argentina and Chile already have more developed technology and infrastructure.

The Volvo bio-LNG hit the European market five years ago. The model can run long road distances because in its liquid state the vehicle's range is like a diesel truck.

In addition, with fuel of vegetable origin it is possible to cut 100% of CO2 emissions. This is because renewable fuel can be made from various types of organic waste, such as food leftovers, vegetable and animal oils, bagasse, and leftovers from plantations. In Europe, Volvo already sells FH and FM gas models with the same powers as the diesel versions.

Source: *O Estado de São Paulo* **Read The Article**

PSR Analysis: With no news on infrastructure for LNG production and distribution it may be limited to dedicated fleets in Agribusiness with limited range and determined routes in Brazil. In other South American markets, the percentage share may be higher, but the absolute volumes are not comparable to those in Brazil.

Vale Increases Use of BE Locomotives in Brazil

As part of the strategy of accelerating the use of technologies that use renewable sources, Vale received at the end of March its second 100% electric locomotive, powered by battery. Manufactured in China by CRRC Zhuzhou Locomotive (CRRC ZELC), the equipment will initially operate in the maneuvering yard of the Ponta da Madeira Terminal in São Luís (MA). Its batteries, made of lithium, have a storage capacity of 1000 kWh, with autonomy to operate up to 10 hours without stops for recharging.

CRRC's locomotive is part of Vale's strategy to electrify its mine and rail equipment. The two areas account for 25% of the company's direct carbon emissions, the so-called scope 1. In 2019, Vale announced the goal of zeroing its

Click Here To Go To Page 1

South America Report

Continued from page 8

net emissions of scopes 1 and 2 (relative to electricity consumption) by 2050. To this end, it is investing between US$ 4 billion and US$ 6 billion.

Currently, Vale's fleet totals 490 diesel-powered locomotives dedicated to the transportation of iron ore. The company's first fully electric machine, manufactured by Progress Rail, was received in July 2020 at the Vitória-Minas Railroad (EFVM).

The two 100% electric locomotives are part of Powershift, a program created by Vale to meet the company's challenge of zeroing carbon emissions from scopes 1 and 2. In addition to locomotives, the program has also been conducting tests with electrical equipment at underground mines in Canada – there are currently about 40 in operation.

Vale's operations equipment electrification strategy also includes a partnership with its peers BHP and Rio Tinto. Last year, the three companies, along with 17 other mining companies, launched the "Charge On Challenge." It is a global call for innovation aimed at entrepreneurs capable of developing electrification solutions for large trucks used in mines.

Source: *Vale Press Release* **Read The Article**

PSR Analysis: Vale is one of the most important users of Locomotives in Brazil with full its logistic model and railroad operation in addition to its mining business. The success of using new technologies and alternative power propulsion may impact the business significantly. In addition, the program for new technology opens opportunities for Billion Dollar Supply in the next years for this business segment for companies all around the world. PSR

Biodiesel Mix Increase Begins in April in Brazil

During its first meeting March 17, 2023, the new leadership of the National Council for Energy Policy (CNPE) approved an increase to 12% of the mandatory blend of biodiesel to diesel sold in Brazil, after April this year.

The proposal approved by the CNPE sets the addition of biodiesel in the composition of diesel to grow in April this year from the current level of 10% (B10 mixture) to 12% (B12 mixture). The content will be raised to 13% (B13 mixture) in April 2024, to 14% (B14 mixture) in April 2025 and to 15% (B15 mixture) in April 2026.

The MME estimate is that the national production of biodiesel will go from the current 6.3 billion liters to more than 10 billion liters annually, between 2023 and 2026. In addition, it is planned to reduce the import of 1.3 billion liters of diesel oil in 2023 and 4 billion liters in 2025. The date for each step of the levels defined now may be anticipated based on an assessment by the CNPE of aspects related to the supply and demand of biodiesel, as well as its economic impacts.

Source: *Government Press* **Read The Article**

Click Here To Go To Page 1

South America Report

Continued from page 9

Scania reallocated 200 employees at the remaining shift and laid off part of its temporary workers in the workforce. Scania does not have a forecast to reopen the second shift.

PSR Analysis: This announcement scares OEMs that struggle with the collateral effects of a Biodiesel increase in the mix on engine performance and durability. The industry preference is for HVO, the full scale production of which has been promised by Petrobras for 2022, but it is not an alternative yet today. PSR

Scania, Mercedes Reduce Production Shifts in Brazil

In line with ANFAVEA forecast of 20% reduction in production for 2023, Scania and Mercedes announced the reduction of one shift of production in MHV production lines. Scania reallocated 200 employees at the remaining shift and laid off part of its temporary workers in the workforce. Scania does not have a forecast to reopen the second shift.

At the same time, Mercedes announced three months forecast to reopen the shift. While Scania only mentioned market demand as a reason for its reduction, Mercedes mention Market, lack of components and the country's interest rates.

Source: *Valor Econômico* **Read The Article**

PSR Analysis: With pre-production of Euro V versions at the end of 2022 and low demand for more expensive Euro VI versions, it is natural to reduce production by OEMs and to manage people and shifts to adjust costs.

The forecast of Mercedes for second shift return seems right, since inventory of trucks produced in 2022 should not last longer than May, with the sales numbers seen in Q1 2023. However, there is much expectation on new government movements in Brazil, with less positive scenarios than negative ones. **PSR**

Europe Report

By Natasa Mulahalilovic, Marine Pleasure Boat Analyst-Europe

Group Beneteau Forecasts 10% Growth in 2023

Natasa Mulahalilovic

Groupe Beneteau, one of the world's leading manufacturers of pleasure boats and mobile homes, posted revenue of USD 1.6 million (1.508,1 million EUR) for 2022. The boat division generated USD1.3 million (1.250,9 million EUR), 83% of the group's total revenue.

The Group order books are full for this year. The forecast is for 10% growth compared to revenues achieved in 2022. Last year, revenues by market were at 613.20 million EUR for Europe, 424.4 million EUR for North America and 135.9 million EUR for other regions.

The group plans to launch 13 models in 2023, of which five will be new models

Click Here To Go To Page 1

Europe Report

Continued from page 10

of dayboats, four models of sailing yachts, two models of sail catamarans and two models of power catamarans.

The boat division revenues increased 19.7% compared to 2021. The motorboats division contributed 58% of the total and the sailing division added 42%. The best-selling boats are the motor dayboats in size up to 8 meters followed by the sailing multihulls over 10 meters.

Sales of dayboats branded Wellcraft, Four Winns and Scarab gained 26 % compared to 2021. Originally named US brands, the group was acquired by the French group in 2014 as a part of its strategic plan to enter the US market and to develop the motorboat segment in size less than 8 meters. Eight years later, they are becoming the global market sales leader. Together with dayboats branded Jeanneau and Beneteau, the motor segment is posting a sales growth in the North and Central America market of 27% and in Europe by 9.5%.

Sales of sailing yachts branded Beneteau and Jeanneau and sailing catamarans branded Excess and Lagoon grew 31.8%. They've been mainly sold to charter professionals globally. The main market for sailing boats remains Europe.

The Polish brand Delphia has been totally focused to develop and start the production of fully electric boats for sustainable inland boating. Two Delphia models in size of 10.77 meters and 9.78 meters have been launched. They are powered with the Torqueedo Deep Blue system, which includes an electric engine and lithium battery. For the moment, the builder is offering the same models in a diesel option powered by Yanmar 57 or 150 hp engines. Delphia aims to end production of diesel boats by 2025 being totally invested into the electric boats segment development.

The group will continue to work on its B-Sustainable program development that includes the brands Engaged Crew, Preserving Oceans and Ethical Growth. Plans call for the alternative propulsion solution to be implemented into the entire boats division by 2030. Four Winns dayboats with the Vision Marine's E-motion 180 hp propulsion system are scheduled to be launched in Spring 2023. **PSR**

China Report

By Jack Hao, Senior Research Manager - China

Beiqi Foton Motors and Cummins Set Joint Investment

Beijing Foton Motors and Cummins said they will further strengthen their strategic cooperation in the Southeast Asian region and sign a joint investment agreement with the Foton Cummins Thailand engine factory to provide powertrains for the Foton Zhengda vehicle base and Southeast Asian business.

Click Here To Go To Page 1

China Report

Continued from page 11

Jack Hao

This signing would mark a further strategic cooperation between Foton Motors and Cummins, targeting a wider range of regional markets and providing more diversified power solutions to global customers.

As a global emerging economy, ASEAN (Association of Southeast Asian Nations) has become one of the regions with the greatest development potential in the world. In recent years, Foton Motors has had significant business expansion in Southeast Asian countries including Thailand, Malaysia, and the Philippines. Their market share has gradually increased in trucks, buses, and other specialized vehicles, and they have built their reputation in the local market.

As a global pioneer in power technology, Cummins established its Asia Pacific business headquarters in Singapore before entering the Chinese market. The scope covers the entire Southeast Asian region, and after decades of deep cultivation, a complete service and distribution network has been established locally.

With the continuous expansion of the export operations of Chinese commercial vehicle and construction machinery companies in recent years, Cummins' comprehensive service support system in Southeast Asia has become increasingly important. It can help Chinese enterprises quickly establish a sales service system and provide professional support, which is a major assistance for Chinese partners to expand their business in the local area.

Source: *Foton* **Read The Article**

PSR Analysis: From a market perspective, the RCEP region (Regional Comprehensive Economic Partnership) is an important global commercial vehicle market. The RCEP is a free trade agreement among 15 Asia-Pacific nations including Australia, Cambodia, China, Indonesia, Japan, South Korea, New Zealand, the Philippines, Singapore, Thailand, and Vietnam.

Member countries account for about 30% of the world's population (2.2 billion people) and 30% of global GDP ($29.7 trillion), making it the largest trade bloc in history. Signed in November 2020, RCEP is the first free trade agreement among the largest economies in Asia, including China, Indonesia, Japan, and South Korea.

From 2019 to 2021, the region's share of the global commercial vehicle market remained above 25%. In 2022, China exported 145,900 commercial vehicles to RCEP's 14 countries, a year-on-year increase of 20.9%. Among them, Vietnam, Indonesia, and Australia are the top three markets. The products with the largest export volume are diesel trucks and road tractors.

Although the commercial vehicle market hovered at a low level in 2022, the overseas market performed well. According to data from the China Automobile Association, a total of 582000 commercial vehicles have been exported, an increase of 44.9% year-on-year.

Click Here To Go To Page 1

China Report

Continued from page 12

In 2022, BAIC Foton achieved overseas sales of 86,000 vehicles, a year-on-year increase of 54%, maintaining the top spot in commercial vehicle exports for 12 consecutive years.

Throughout the Southeast Asian market, the traditional commercial vehicle market is also largely occupied by Japanese brands. However, with the gradual implementation of the RCEP trade agreement, competition between Chinese and Japanese brands in the region will become more intense.

With the gradual implementation of policy subsidies for clean energy and electric vehicles in Indonesia and Thailand, competition will also shift from traditional fuel commercial vehicles to the field of electric commercial vehicles. **PSR**

Far East: Japan Report

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

Honda Plans Personal Electric Motorcycles

Akihiro Komuro

Honda said it plans to produce a motor-driven electric motorcycle for individuals in Japan by the end of 2023. This will be the first time Honda produces a product for the public in Japan.

Overall, Honda said it plans to launch more than 10 models of electric motorcycles worldwide by 2025. Their goal is to increase overall sales, including pedal-powered and electric bicycles, mainly in China and India. The company plans to increase its sales to 3.5 million units worldwide by 2030, more than 20 times the 2021 level.

The EM1e electric scooter was unveiled March 17, 2023, in Japan. It has a cruising range of approximately 40 km and uses replaceable batteries. The price

Click Here To Go To Page 1

Far East Report

Continued from page 13

All companies are very ambitious about electric motorcycles, but there are still many challenges to be overcome before they become widespread.

is expected to be higher than gasoline-powered scooters with a displacement of about 50 liters. The company plans to launch a moped that can be pedaled with the feet, and five other motorized bicycle models in China, Southeast Asia, Europe, and Japan by 2024.

Electric motorcycles face the problem that on-board batteries are expensive and production costs are more than 50% higher than those of internal combustion engine models. Honda plans to increase its global sales to 1 million units by 2026, and further to 3.5 million units by 2030. However, demand for internal combustion engines is strong in emerging countries, and Honda intends to maintain its annual production capacity of 20 million two-wheeled gasoline vehicles until 2030.

Source: The Nikkei

PSR Analysis: Honda is finally bringing an electric model to the consumer market. Yamaha already sells the E-Vino to individuals. Harley is spinning off its electric motorcycle division to attract investment, and India's Hero will release its VIDA electric motorcycle in 2022 and is working with a U.S. company to develop new products.

All companies are very ambitious about electric motorcycles, but there are still many challenges to be overcome before they become widespread. As a first mover example, Taiwan's Gogoro is doing well by developing a network of battery exchange stations. Honda's EM1e is equipped with a single replaceable battery, and by taking the battery pack home after use and recharging it at a power outlet at home, the vehicle can start running the next day with a fully charged battery.

The handle makes the battery look easy to carry, but at 10.3 kg, it may be difficult for women to accept it. The spread of battery exchange station networks like those in Taiwan has just begun in Japan, and charging stations in urban areas are still in their infancy. **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

ホンダ、個人用電動二輪の発売を決定

ホンダはモーターで動く電動二輪車の個人向け商品を2023年内にも日本で発売する。一般向けの国内発売は初めて。電動二輪全体では2025年までに世界で10車種以上を出す予定だ。中国やインドなどを中心にペダル付きや電動自転車を含めて全体で販売を増やす。販売台数は2030年に2021年比で20倍以上となる世界350万台に高める計画で二輪車でも電動シフトを急ぐ。

3月17日、電動スクーター「EM1e」を日本初公開した。航続距離は約40kmで交換式電池を採用する。排気量50cc程度のガソリン車のスクーターより価格は割高になる見通しだ。足でこぐことができるペダルを備える「モペット」や、モーター付き自転車5車種を2024年までに中国や東南アジア、欧州、日本で売り出す。2024年から2025年にかけては電動バイクで5車種を追加する。

Click Here To Go To Page 1

Far East Report

Continued from page 14

電動二輪は車載電池が高価で、現状では生産コストが内燃機関と比べて5割以上高い課題を抱える。ホンダは世界での販売規模をまず2026年までに100万台に引き上げる。2030年にはさらに350万台まで拡大する計画だ。ただ、新興国での内燃機関の需要は根強く、2030年までは年2千万台程度の二輪ガソリン車の生産能力を維持する構えだ。

PSR 分析: ホンダも電動モデルを一般消費者市場に投入することになった。ヤマハはすでにE-Vinoを個人向けに販売している。ハーレーは電動二輪部門を分社化して投資を集めている。インドのヒーローは2022年に電動二輪VIDAをリリースし、米国企業と協業して新製品の開発を行っている。各社とも電動二輪について非常に意欲的だが、普及にはまだまだ課題が多い。先行者事例としては台湾のGogoroがバッテリー交換ステーション網を整備したことでうまくやっている。今回発表されたホンダのEM1eも交換式のバッテリーを1個搭載しており、使用後にバッテリーパックを持ち帰って自宅のコンセントで充電することで、翌日には満充電の状態で走り始めることが可能だ。持ち手が付いているので持ち運びは楽そうに見えるが10.3kgの重さは女性に受け入れられるか微妙なところだろう。台湾のようなバッテリー交換ステーション網の普及については始まったばかりであり、都市部での充電ステーションの普及はまだまだこれからだ。
PSR

Southeast Asia: Vietnam Report

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

Vingroup To Enter EV Cab Market

Vingroup plans to launch a cab business using EVs in the country in April. The founder and chairman of the company has established a new company, owning a 95% stake. The company plans to start the service in Hanoi, the capital of the country, and expand it nationwide within the year. The company also hopes to increase awareness of its products.

The new company, Green and Smart Mobility (GSM), is capitalized at US$ 128 million (VND3 trillion, approximately 17 billion yen) and will develop a cab business using EVs as well as a business that rents EVs and electric bikes to other cab companies, etc. GSM plans to use 10,000 EVs and 100,000 electric bikes.

Source: The Nikkei

PSR Analysis: It has been more than three years since Vinfast began full-scale EV production in 2019. After launching a plant with a production capacity of 250,000 units, while the entire domestic car market in Vietnam at the time was around 400,000 units, the company has been developing its business at an unimaginable speed, as its name implies.

Click Here To Go To Page 1

South East Report

Continued from page 15

In August 2022, the company announced that it would cease production of its mainstay gasoline-powered vehicles, and that it would concentrate its resources on EVs and pursue a strategy of expanding globally, including in the U.S. and European markets.

In August 2022, the company announced that it would cease production of its mainstay gasoline-powered vehicles, and that it would concentrate its resources on EVs and pursue a strategy of expanding globally, including in the U.S. and European markets. The company also announced that it would be actively expanding its business in Europe and the United States.

It should be noted that the company is only a small player when viewed globally. However, unlike other automakers, Vinfast's parent company, Vingroup, has become a leading conglomerate in Vietnam by diversifying its business into education, agriculture, and healthcare, with real estate as its core business.

It is fair to say that the company's diversified and flexible business style has made its announced cab business possible at an early stage. The core business of an automobile manufacturer is to manufacture and sell automobiles, but Vingroup's flexibility and willingness to develop new businesses and new markets can serve as a valuable example for other automobile manufacturers. **PSR**

東南アジア > ベトナムレポート:

小室 明大 – 極東及び東南アジア リサーチアナリスト

ビングループ、4月にEVタクシー参入へ新会社設立

ビングループは4月に同国でEVを使ったタクシー事業に乗り出す。創業者会長が95%を出資し、新会社を設立した。まずは首都のハノイでサービスを始め年内に全国に広げる計画。自社製品の認知度向上にもつなげる。新会社GSMグリーン・アンド・スマートモビリティーの資本金は3兆ドン（約170億円）。EVを使ったタクシーのほか、EVや電動バイクを他のタクシー会社などに貸し出す事業を展開する。GSMではEV1万台と電動バイク10万台を使用する予定だ。

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: ビンファストは2019年に本格的にEV生産を開始してから3年以上が経った。当時ベトナムの国内自動車市場全体が40万台程度である中で、25万台の生産能力をもつ工場を立ち上げた後は、その社名の通り想像を絶するスピードで事業展開してきた。2021年にはビンファストの販売台数は35,700台に到達し、わずか2年で総市場の約9%を占めるまでに至った。2022年8月には、主力であったガソリン車の生産を年内に停止することを発表し、EVに資源を集中させ、欧米市場などグローバルに展開する戦略を追求する方針を示した。欧州や米国にも積極的に進出している。

彼らのビジネス規模はグローバルで見れば現状では小さなプレイヤーだと言わざるを得ないのかもしれない。だが他の自動車メーカーとは異なり、ビンファストの親会社であるビングループは、不動産業を軸に、教育関連、農業、ヘルスケアなどの多角的展開でベトナムを代表する財閥になった。今回発表されたタクシー事業も、彼らのそうした多角的で柔軟なビジネススタイルが早期に実現させたと言っていい。自動車メーカーは自動車を製造して販売することが軸であることは言うまでもないが、彼らのより柔軟で未経験の事業や新たな市場を積極的に開拓しようとする姿勢には、他の自動車メーカーにも参考にする価値があるはずだ。**PSR**

Click Here To Go To Page 1

India Report

By Aditya Kondejkar, Research Analyst – South Asia Operations.

LNG May Be Fuel for Long-Haul Trucking

Aditya Kondejkar

With the increasing penetration of the Compressed Natural Gas (CNG) network across India, many cities may transition from conventional diesel-powered vehicles to CNG for the last mile.

Liquefied Natural Gas (LNG) could be a favorable option for heavy and long hauls due to its higher energy density and hence a lower payload penalty and potential range, a lower carbon footprint/noise levels and its cryogenic temperatures which makes it a theft-proof fuel option.

At the same time, the use of HPDI (High-Pressure Direct Injection), a system that enables heavy–duty trucks to operate on natural gas with diesel- like performance would also aid in the switch to LNG.

Companies Consider LNG. Many companies are developing LNG-powered options, and several partnerships have been created to develop LNG-powered units.

- **Volvo Trucks India** showcased its LNG-powered FM 420 4x2 tractor at **Auto Expo 2023**. The company plans to use this truck to meet the growing demand for long-haul applications such as e-commerce, where timely and speedy delivery are expected.
- **FPT Industrial** has acquired a minority stake in **Blue Energy Motors**, which will further strengthen the future of LNG trucks in the country, as well as the development of the next-generation heavy-duty electric (BEV) truck platform for the Indian market.
- **GreenLine Logistics**, an LNG-fueled heavy trucking logistics company, has entered into an LNG supply agreement with **Baidyanath LNG Private Limited**.

Source: *ET Auto.com* **Read The Article**

PSR Analysis: Transportation options are plentiful, but they are limited when it comes to heavy-duty long-haul transportation. Electrification in this segment faces challenges of cost, range, and infrastructure. Although hydrogen is a possible alternative, it may take up to 5-7 years to become commercially viable.

Therefore, we believe that LNG is the best solution for immediate adoption in long-distance transportation and can aid the transition to green trucking. Additionally, LNG fuel is cost-effective and has a superior emissions profile compared to other options. **PSR**

Click Here To Go To Page 1

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*** *if you have questions regarding business conditions in Russia. Thank you.* **PSR**

Meeting Your Information Needs

Power Systems Research (PSR) has been providing world class business and market intelligence on power equipment to industry leaders for more than 40 years. A comprehensive range of database products and strategic analysis services is available to meet your planning needs. For more information, visit us at **www.powersys.com**.

- **EnginLink™** – Engine Production and Forecast Data
- **CV Link™** – Commercial Vehicle Production and Forecast Data
- **OE Link™** – Original Equipment Production and Forecast Data
- **OE Link Sales™** – Original Equipment Sales and Forecast Data
- **PartsLink™** – Engine and Original Equipment Population Data
- **MarineLink™** – Boat Production and Engine Installation Data
- **PowerTracker™ North America** – North American gen-set syndicated survey
- **Call Center** - In-house calling capability for custom surveys
- **Market Studies** – Conducted more than 3,100 proprietary studies
- **Component Modules** – Supplemental data sets including engine specifications, components and consumables.

PSR is the leading source of global production, forecast, and population data for equipment and vehicles powered by IC engines and electric and hybrid powertrains. PSR has been tracking the production of on-highway and off-road vehicles and equipment since 1976. We use this data to develop targeted **forecasts** by industry segment and region. Our team of experienced analysts works with OEMs, engine and component manufacturers, dealers, fleet managers and industry experts to compile detailed and focused data that has become an industry standard. PSR analysts combine our data with industry intelligence to create unique, targeted **solutions** to our clients' needs.