PowerTALK™ News

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

August 24, 2021 Volume 6 No. 8

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 more than 40 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

PowerTALK™ News Available in Japanese

To better meet the needs of our readers who prefer to read PowerTALK™ News in Chinese or Japanese, we now offer articles from Asia in Chinese and Japanese, as well as English. Click here to read directly in **Japanese**.

PowerTALKを日本語でお読みいただけるようになりました

日本語で読みたいという読者様のニーズに応えるために、アジアから日本語の記事を提供しています。日本語をご希望の方は**こちら**をクリックしてください。

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

Click Here To Go To Page 1

Listen To New PSR PowerTALK Podcast

Now, you can listen to the leading analysts and editors from Power Systems Research discuss the outlook for powertrain news each Tuesday by region and by targeted industry segments on PSR PowerTALK Podcast. **PSR**

Visit the PSR PowerTALK Podcast Archive.

Global Report

Chris Fisher

Most Regions Will Post 20%+ Growth in Truck Production

By Chris Fisher, Senior Commercial Vehicle Analyst

Editor's Note: *This is an updated report from the* ***Q2 2021 Truck Production Index*** *report produced by Chris Fisher and Jim Downey, Vice President-Global Data Products, in July 2021.*

Question: ***What is the global truck production picture? What is the outlook?***

PSR Opinion: Overall, medium and heavy truck demand will finish the year on a strong note, and continued strength is expected into 2022. On-going supply chain disruptions will continue to impact production throughout the rest of the year and likely into 2022.

Question: ***What kind of global production volume do you expect for this year?***

Click Here To Go To Page 1

Global Report

Continued from page 2

PSR Opinion: Currently, we expect global production volumes to increase by 5.6% this year with most regions exceeding 20% growth over last year. However, production in China is expected to decline by 12.2% this year compared to 2020.

***Question:* What level of medium and heavy commercial vehicle growth do you expect this year?**

PSR Opinion: Most regions will experience double digit growth this year, with North America growing at 30%, South Asia at 45%, Greater Europe at 21%, and Central America at 36% compared to 2020. However, medium and heavy commercial vehicle production in Greater China is expected to decline by 12% this year.

***Question:* It sounds as though most regions can expect to see solid growth this year, except for China. What's going on in China?**

PSR Opinion: In China, heavy truck demand during the first half of the year was strong, primarily due to a truck pre-buy ahead of the China VI emission standard implementation in July 2021.

However, the cost of the emission technology for China VI vehicles is not offset with any significant improvement in fuel economy.

China also experienced a surge in demand last year prior to the change in emissions regulations and a government requirement eliminating all pre-China IV emission compliant trucks from the roads.

***Question:* What do you see for production of heavy trucks this year in China?**

PSR Opinion: The industry is currently expecting production of heavy trucks to be approximately 1.4 million units. That's a drop of 15% compared with 2020.

***Question:* What is the outlook for North America?**

PSR Opinion: While the 2021 class 8 truck order boards in the United States are mostly filled and orders for next year are also expected to be strong, there are concerns surrounding higher levels of inflation. We believe much of the inflation we are seeing is a direct result of the ongoing supply chain disruption and worker shortages.

Freight demand in the US remains extremely strong and freight rates remain very high, primarily due to high levels of consumer spending and the overall strong economy.

***Question:* Are there any clouds on the horizon for North American commercial vehicles?**

PSR Opinion: While the demand side is currently very strong, the supply side is where the issues lie concerning medium and heavy truck production. The on-going issues with the supply chain are expected to continue for the remainder of the year and likely into 2022 as OEMs continue to have difficulty sourcing various components such as semi-conductors.

Click Here To Go To Page 1

Global Report

Continued from page 3

During the first four months of the year, European medium and heavy commercial truck registrations improved by 28.5% compared to the same period in 2020.

On-going supply chain disruptions, worker shortages and possible negative effects from high levels of government spending could continue to fuel higher inflation moving forward.

The delta variant of the corona virus could also cause problems for the economy thus lower demand for commercial vehicles. At this point, it is too early to tell what the impact of this will be.

***Question:* What is the outlook for Europe?**

PSR Opinion: During the first four months of the year, European medium and heavy commercial truck registrations improved by 28.5% compared to the same period in 2020. Order bookings remain strong primarily due to an improved economy.

***Question:* Is Europe facing any supply chain problems?**

PSR Opinion: Actually, Europe is facing the same problems as other regions with various supply chain disruptions. While sourcing of semi-conductors continues to be a problem, the EU's proposal to extend the restriction on steel imports into Europe remains a point of concern. While most of the steel is sourced in the EU, imports are needed to fill in the gaps especially during periods of high vehicle demand.

During the first four months of the year, European medium and heavy commercial truck registrations improved by 28.5% compared to the same period in 2020. Order bookings remain strong primarily due to an improved economy. Much like North America, the delta variant of the virus could disrupt the European economy during the last part of the year.

***Question:* Electrification is growing in many segments in Europe. What are commercial vehicle OEMs doing in this area?**

PSR Opinion: Electrification is taking hold in Europe, primarily in the transit bus segment. At the same time, most major OEMs have introduced--or plan to introduce--electric trucks during the next few years.

However, higher up-front costs, battery weight and a lack of a charging infrastructure will limit electric trucks to short distance applications such as refuse, pickup and delivery and some regional haul applications.

***Question:* Acceptance for long haul applications is still a long way off, though, isn't it?**

PSR Opinion: Yes, I think so. Barriers such as cost, weight and charging infrastructure will need to be overcome before significant adoption in additional segments such as long haul can begin.

It appears more likely that Hydrogen fuel-cell vehicles will play a significant part in the long-haul heavy truck segment in the future. There are a number of joint ventures which have been established with the goal of not only developing hydrogen fuel cell trucks but also the fueling infrastructure that will be needed

Click Here To Go To Page 1

Global Report

Continued from page 4

for the long-haul segment. It seems like the goal here is to have much of the infrastructure in place and significant truck production capacity available by 2030.

***Question:* What's going on in other parts of Asia?**

PSR Opinion: Medium and heavy commercial vehicle production in India is expected to reach 261,000 vehicles in 2021. That's an increase of 55% over last year. Moderate growth is also expected in 2022 and 2023 before declining in 2024 partially due to it being an election year.

***Question:* Are there any clouds on the horizon?**

PSR Opinion: Unfortunately, the medium and heavy truck segment will continue to face headwinds due to excess capacity in the market, increased rail freight usage, relative constant freight rate and booming fuel prices.

We're also witnessing a change in product dynamics--the share of higher tonnage vehicles is rising. Because of this trend, fewer trucks will be needed to haul the same amount of freight.

***Question:* What about other parts of Asia?**

PSR Opinion: While commercial vehicle demand is generally strong, the supply chain disruption is making it difficult for production to meet the demand levels. This is expected to continue through at least the end of the year.

***Question:* What's going on in Japan and Korea?**

PSR Opinion: Medium and heavy commercial vehicle production in Japan and South Korea is expected to increase by 16% this year.

While South Korean production is expected to increase by 28% this year, Japan production continues to lag and is expected to improve by only 14.8%. Japan has been hit particularly hard by the supply chain disruption.

PSR expects continued volatility in this region throughout the remainder of the year.

***Question:* South America has been suffering badly from several waves of COVID. What is your outlook there?**

PSR Opinion: Medium and heavy commercial vehicle production is expected to increase by 36% this year over 2020 with truck production improving by 41%.

Increased vaccinations and an overall improving regional and global economy are driving the growth in vehicle demand.

However, continued supply chain disruptions are hurting production and this trend is expected to continue throughout the remainder of the year. The covid delta variant may also impact demand in the second half of the year. **PSR**

Click Here To Go To Page 1

Global Report

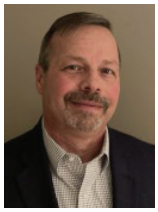
Continued from page 5

Bitcoin is a digital currency powered by many computers worldwide working to maintain the Bitcoin blockchain, a public database of all transactions on the network ever made.

How Much Energy Does Bitcoin Consume?

By John Krzesicki, Business Development Manager

Today, Bitcoin consumes as much energy as a small country. This certainly sounds alarming, but the reality is a little more complex.



John Krzesicki

Our clients design and build generators installed for data centers, factories, distribution centers, commercial buildings, office buildings, grocery stores, and banks for emergency backup, peak shaving, or continuous power. Bitcoin miners utilize data centers for housing and managing their data (server) farms.

Bitcoin is a digital currency powered by many computers worldwide working to maintain the Bitcoin blockchain, a public database of all transactions on the network ever made. Bitcoin miners compete to officially record and verify the transaction and earn bitcoin as a reward. These transactions are verified by solving complex cryptographic and mathematical problems for which Bitcoin miners use a lot of power. The computers that record and verify Bitcoin transactions consume power at a level similar to some countries. The exact amount of energy used by a Bitcoin transaction can vary based on demand.

Cryptocurrency Mining Farm

The environmental impact of the Bitcoin network depends on power consumption, the kind of energy powering the network, and the electronic waste it generates. The four main factors in how much electricity a Bitcoin miner uses are: hardware, computing power, network hash rate, mining difficulty, and thermal regulation for the hardware. Together, they use more electricity than many countries. The more powerful computers may also require more power off the electricity grid, making the entire mining network a giant energy hog.

The cryptocurrency equipment required for Bitcoin mining cannot be recycled for different applications. Some mining equipment components also include

Click Here To Go To Page 1

Global Report

Continued from page 6

aluminum, copper, iron, and rare earth metals. These generate massive amounts of electronic waste in the form of computer hardware. Some researchers believe that less than ideal recycling and waste collection in countries that have large mining operations could create a risk of toxic metals polluting the soil, water, and air in those countries.

With upgrades to the cryptocurrency landscape, including the addition of more efficient currencies and upgrades to existing networks, it may be possible to find the best of both worlds at some point in the future, with energy-efficient cryptocurrencies powered by renewable electricity.

For today, however, mining bitcoin has a high environmental and energy cost; as our clients migrate into the complex world of IoT, they'll need to consider the challenges of managing the cryptocurrency market. **PSR**

DATAPOINT: *US Crawlers*

4,100

By Carol Turner, Senior Analyst, Global Operations

4,100 units is the estimate by Power Systems Research of the number of crawlers to be produced in North America in 2021.

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 combined plant totals of 55% Caterpillar leads in production of crawlers in North America. In second position is Deere with 31.5%; third, is Case with 10%.

Exports: Collectively, up to 30% worldwide.

Trends: During 2020, production of Crawlers in North America (US) decreased nearly 18%, but production is expected to rebound 19% in 2021, compared to 2020. Most of the decline in 2020 was due to COVID-19-related factors such as plant shutdowns, parts availability and lack of workforce. The market significantly dropped in the Spring of 2020 due to the combination of low oil prices and a lull in mining and construction projects.

A few years ago, construction spending in the United States was above annual levels, according to a new analysis of federal data released by the Associated General Contractors of America. Construction and mining activities increased resulting in gains for 2018.

Decreases in production are also attributed to divergent trends however, as public sector construction activity has continued to decline while private sector demand

Click Here To Go To Page 1

Datapoint

Continued from page 7

for new construction strengthened. Even though sales dropped considerably in 2020, production is expected to gain up to 15% by 2025 primarily influenced by the positive outlook for construction (infrastructure) and mining related activities. **PSR**

Europe Report

By Christopher Bamforth, Analyst – European Operations

Christopher Bamforth

Rapid Economic Recovery Puts Pressure on Supply Chain

After continued positive market trends which started towards the end of 2020, as well as good progress in their initiatives for integration and sustainability, the Finnish quarrying and mining equipment group Metso Outote grew their order intake in the second quarter by 43%. Supported further by a robust recovery fuelled by infrastructure investments in Europe and the US, and the quarterly orders were higher than in the first quarter.

They believe that many of these new order intakes are a direct result from their "Positive planet portfolio". This new initiative has been designed help customers improve the sustainability and productivity of their operations. This initiative performed even better than expected, they have already estimated a value of €105m end of June, out of the predicted €120m for 2021. This highlights the ecological trend that we are seeing across most industries.

This does however leave another side to the coin, which is the increased pressure on the global supply chains and logistics, which have left, not only Metso Outote but many players, with very long delivery wait times and many delivery delays. As a result, the group has decided to implement corrective actions and says it will be able to deliver more efficient and sustainable logistics to its customers.

CEO and president Pekka Vauramo said that he was looking to the second half of 2021: "We expect to see further recovery from the pandemic and our customers being active in their ongoing operations and future investments. Sustainability is becoming one of the top priorities for consumers and industries and it is a strategic priority for us as well. Thanks to this approach, we are confident that we are well-positioned and have the most comprehensive offering to help our customers to meet their sustainability and productivity targets."

Sources: *Aggregates Business* **(Read The Article)** *and* **PSR OE Link™ database**

PSR Analysis: Despite the difficulties on the supply side of business, we are seeing a very strong demand across most markets, which is captured in our forecast at 8.6% for the construction market in 2021. This trend should continue

Click Here To Go To Page 1

Europe Report

Continued from page 8

The supply side should adapt in the short term to these new market dynamics, especially as many players are already looking into different possible solutions to the new problems.

for the rest of the year, as long as the pandemic permits. The supply side should adapt in the short term to these new market dynamics, especially as many players are already looking into different possible solutions to the new problems.

We are also noticing a second very important trend, ecology, efficiency, productivity, and sustainability. Although we have been seeing this trend for a while, there seems to be new-found urgency. This could be fuelled by the current affairs that could be very good incentives to do the right thing. This is heavily highlighted by the "planted positive portfolio" that has been credited with much praise and high adoption rate.

These trends are set to continue and gain traction throughout the year into 2022. There is however still a looming threat caused by the lasting effects of the covid pandemic, if things continue down this trend it is unlikely to have too much of a negative effect. **PSR**

Brazil/South America Report

By Fabio Ferraresi, Director Business Development South America

Fabio Ferraresi

Ford Ends Production of Troller

Even though Ford has announced the end of production of the off-road Troller T4 in Horizonte, Ceará, Brazil, by September 2021, the secretary of industrial development of Ceará says that while Ford is working to sell the productive unit, it wants to keep the brand and the product design as its property. Government of the state is trying to change Ford executives mind about the decision.

Source: *Autoespoerte / O Globo* **Read The Article**

PSR Analysis: Troller T4 holds an important share of the sports outdoor market niche and can be explored by specialized players. The product holds an important reputation among off-road lovers and the end of production will make a hole in the product lineup aimed at these people.

Toyota Suspends Production in Sorocaba, Brazil

Toyota is one of the OEMs least affected by the semiconductor crisis, but it now says production will be suspended for 10 days at its Sorocaba plant. The announcement does not refer specifically to semiconductors and other components and materials may be affecting the production capacity.

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

Click Here To Go To Page 1

Brazil/South America Report

Continued from page 11

PSR Analysis: The shortage of materials and price escalation is affecting all OEMs and suppliers in the automotive supply chain, from basic steel grades to semiconductors. Price escalation goes up to 120% in local currency and OEMs are struggling to keep the lines running and maintain competitiveness. This time, even Toyota, known as the best planner and most stable OEM over here had to push the brakes and take a breath to return production in a better ordered way.

Komatsu Invests in Production and Service Center in Pará

Since 2020 Komatsu has been investing in Parauapebas, in the state of Pará in Northern Brazil, for a new facility that will provide maintenance for equipment and produce new equipment. The General Manager of the Mining Division for South America, Charles Medeiros says the unit will produce products for all regions in Brazil and for export.

Source: *M&T* **Read The Article**

PSR Analysis: Pará is an important region for mining where companies like Vale are located and demand for local support, especially for maintenance and spare parts availability, is significant. The total investment announced is less than US$ 8 million and it is small investment for high volume production. It's most likely that the plant will only assemble CKD units for mining operations in that region. **PSR**

Taiwan Report

By Erik Martin, Director – Asia Region

Erik Martin

Understanding the Global Chip Shortage

Semiconductors help power everything from your phone to your car. Here's what to know about the major supply chain problem.

There are chips in nearly everything electric you own, from your phone to your computer to your car. There are even chips in items you wouldn't expect, such as your washing machine, electric toothbrush, and refrigerator. But these tiny parts that power so much of our lives are now in critically short supply.

"Right now we have a global supply chain in crisis," says Patrick Penfield, a professor of supply chain practice at Syracuse University. "We've just never ever seen anything of this magnitude impact us before."

What are these chips?

These chips are the lifeblood of modern society, but even before the pandemic, demand for them exceeded supply. This year, economist Rory Green called

Click Here To Go To Page 1

Taiwan Report

Continued from page 10

As the world shut down because of the COVID-19 pandemic, many factories closed at the same time, making the supplies needed for chip manufacturing unavailable for months.

semiconductors "the new oil," pointing out that Taiwan and Korea control the lion's share of chip production today.

But while these chips were an American invention, the number of US manufacturers currently creating them has declined severely. In 1990, 37% of chips were made in America, says James Lewis, senior vice president and director of CSIS's Strategic Technologies Program. By 2020, that number was only 12%.

What is the chip shortage?

As the world shut down because of the COVID-19 pandemic, many factories closed at the same time, making the supplies needed for chip manufacturing unavailable for months. Increased demand for consumer electronics caused shifts that rippled up the supply chain.

Orders began to pile up as manufacturers struggled to create enough chips to meet the new levels of demand. A backlog began to grow and grow and grow.

Car companies, like Ford, have to predict the amount of chips they will need to produce their cars and order them in advance from one of the chip manufacturers. As of now, it can take at least half of a year for a chip order to come in, says Penfield. The current demand for chips is so great that manufacturers can't make enough chips to meet it at this time, meaning consumers will soon be seeing higher prices for fewer goods.

But the issue wasn't just with manufacturing. As COVID made its way through Asia, ports shut down, sometimes for months. Some 90% of the world's electronics go through China's Yantian port, and it was recently closed, leaving hundreds of container ships waiting to dock.

What caused the chip shortage?

Bad decisions by the auto industry also added to the shortage. When COVID started, many companies canceled their orders for chips because they assumed the economy was about to take a lengthy hit, says Lewis. Car companies in particular cancelled orders, so chip companies switched to making chips for consumer products, attempting to meet the explosive demand caused by the pandemic. Having retooled their plants to make chips for consumer goods instead of cars, a shortage of car chips ensued.

There aren't many chip manufacturing plants in the world, and the few that were running during the pandemic were subject to a series of unlucky weather events that delayed the manufacturing process further.

Japan's Renesas plant, which creates almost one-third of the chips used in cars around the world, was severely damaged by a fire, while winter storms in Texas forced some of America's only chip plants to halt production. Producing these chips also requires a lot of water, and severe drought in Taiwan has also affected production.

Click Here To Go To Page 1

Taiwan Report

Continued from page 11

Does China play a role?

While geopolitical concerns are not the main cause of this chip shortage, one ongoing concern is Taiwan's tense relationship with China. Taiwan is the world's leading chip producer, and the theoretical possibility of war between China and Taiwan puts American access to the chip industry in potential jeopardy and could be catastrophic for many industries that would be unable to get the chips they rely on.

"China is deeply tempted to just seize Taiwan," says Lewis. "The Chinese are desperate to have their own chip industry. It's become a focal point for the competition between the US and China."

American chip manufacturer Intel has announced plans to scale up their chip production, while Taiwan Semiconductor Manufacturing Co and Samsung eye locations for the American factories they plan to build. But while these plans are promising, it will take years before these factories can ramp up their production levels.

What are the effects of the shortage?

The auto industry is getting hit hard, with estimates saying US manufacturers will make at least 1.5 to 5 million fewer cars this year. Ford and General Motors have already limited production. Tesla revised its own software to support alternative chips to maintain its production levels.

When will the issue be resolved?

Opinions on when the shortage will end vary. The CEO of chipmaker STMicro estimated that the shortage will end by early 2023. The CEO of automaker Stellantis said that the shortage "is going to drag into '22, easy." Intel CEO Patrick Gelsinger said the shortage could last two more years.

"We've probably got about nine, 10 months of this to live through," says Lewis. "If you can afford to wait, prices will go down."

Source: *Popular Science* (By Shira Feder) **Read The Article**

PSR Analysis: PSR has devoted considerable time the past 12 months to examining the fragility of the global supply chain. We have addressed the topic in webinars, podcasts, and PowerTALK articles as well as in the quarterly Update Bulletins we send to our data license subscribers.

A central topic in the supply chain issue is the severe shortage of semiconductors. In this article, Shira Feder has provided an excellent overview of the issues facing the automotive industry, as well as all industries which now depend on microchips to function. Citing a combination of lagging demand due to COVID, misfortune, sheer bad luck, poor planning, geopolitical factors and disasters – both man-made and natural, this article reenforces the need to diversify supply chains.

Click Here To Go To Page 1

Taiwan Report
Continued from page 12

Over 2,000 employees at Honda Motor have applied for early retirement, as the Japanese automaker restructures its workforce to gear up to make more electric vehicles.

As fleet electrification expands and autonomous drive technologies progress, the demand for microchips will intensify. Two geographically small countries which punch well above their weight class – Taiwan and South Korea – will continue to be key players moving forward. The US has done well to engage both in working to find solutions, but these will take time to realize. All the more reason for governments to examine what they need to do to either develop manufacturing at home or develop and maintain close relationships with stable and reliable partners. **PSR**

Far East: Japan Report

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

Honda Staff Seek Early Retirement Amid EV Shift

Over 2,000 employees at Honda Motor have applied for early retirement, as the Japanese automaker restructures its workforce to gear up to make more electric vehicles.

Akihiro Komuro

Honda's move is the latest in the trend among automakers to move away from the production and sales of internal combustion engines. Those employees account for around 5% of Honda's full-time staff in Japan. Although Honda has not set a target, the number of applications has far exceeded its initial estimate of 1,000.

Honda's move is part of plans to reduce reliance on older staff as it speeds up the development of electrification and autonomous driving. In the longer term, the early retirement program will reduce fixed costs and improve profitability as its expenses in research and development increase due to the shift to EVs. It announced in April that it plans to sell only new EVs and fuel-cell vehicles by 2040.

Source: Nikkei Asia

PSR Analysis: Various estimates have been made about the decrease in employment due to the shift to EVs, and in the case of Japan, it is said that 100,000 to 300,000 jobs will be lost. It is expected that many manufacturers and local governments will need to recruit early retirees and to create new businesses and take initiatives to maintain and increase work opportunities.

Although the situation is very different from the EV shift, there are also efforts to maintain employment regarding the COVID-19 issue. Airlines have been transferring surplus airport staff and flight attendants to consumer electronics stores and other service industries.

Click Here To Go To Page 1

Far East Report

Continued from page 13

For more than a decade, the shrinking number of jobs associated with the shift to EVs has been recognized, but many manufacturers have been unable to find a drastic solution. Not only Honda, but also Nissan has announced plans to cut 10,000 jobs globally in 2019. Toyota has traditionally placed a high priority on employment and has not issued a clear plan to reduce the workforce at its group companies.

Some EV development sites are saying that they cannot proceed with their plans smoothly due to lack of manpower for development. On the other hand, the staff of the internal combustion engine division, who are gradually losing their jobs, express their concerns about the future. We know that there is no easy solution to this problem, but there is not much time left to solve it. **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、早期退職2000人超　EV見据え世代交代

ホンダが55歳以上の社員を対象に募った早期退職に2000人超が応募したことが5日、分かった。国内正社員の約5%に当たる。電気自動車EVシフトを見据え、担い手となる社員の世代交代を進める。ホンダは応募者の目標を設けなかったが、当初想定の1000人を大幅に上回った。ホンダが人員削減に踏み切るのは、内燃機関から電動化や自動運転へのシフトが急務となるなか、中高年層に偏った社員構成を見直すためだ。若手登用を進め、新技術への対応を急ぐ。ホンダは2040年までに新車販売をEVとFCVのみにする目標を4月に公表している。。

出典: 日経

PSR 分析: EVシフトに伴う雇用減少については様々な試算がされており、日本の場合は10万人とも30万人の雇用が無くなるとも言われている。多くの人材が雇用から外れることが想定されており、メーカー各社や地方自治体は早期退職者の募集だけでなく、新たな事業創出、就労機会の維持や増加への取り組みが必要になるだろう。EVシフトと状況は大きく異なるが、COVID-19問題でも雇用維持に向けた取り組みがある。航空会社では空港職員やフライトアテンダントの余剰人員を家電量販店や他のサービス業に出向させたりもしている。

10年以上も前からEVシフトに伴う雇用縮小は認識されてきたが、各メーカーとも抜本的な解決策は見出せずにいる。ホンダに限らず、日産も2019年に世界全体で1万人の人員削減計画を発表している。トヨタは伝統的に雇用を重視しておりグループ関係各社の明確な人員削減計画は発せられていない。

EV開発の現場からは開発の人手が足りず計画が順調に進められない、という声も聞こえてくる一方で、徐々に仕事がなくなっていく内燃機関部門のスタッフは将来への不安を口にする。この問題が簡単には解決できないことを承知はしているが、問題解決のための時間はあまり多くは残されていない。**PSR**

Click Here To Go To Page 1

Far East Report

Continued from page 14

Hyundai Motor and LG Chem have announced they will build a battery plant for EVs in Indonesia. The investment of US$ 1 billion will be shared equally.

Far East: South Korea Report

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

Hyundai Motor and LG Chem To Build US$ 1 Billion EV Battery Plant in Indonesia

Hyundai Motor and LG Chem have announced they will build a battery plant for EVs in Indonesia. The investment of US$ 1 billion will be shared equally. The plant will mass produce batteries in Indonesia, which has the world's largest reserves of nickel, and supply them to Hyundai Motor and Kia's complete vehicle plants around the world. The new plant will be established on a 330,000 square meter site in an industrial park in the Karawang region, about 65 kilometers southeast of central Jakarta. Construction will begin by the end of this year and mass production will begin in 2024.

The plant will have an annual production capacity of 10 gigawatt-hours, enough to supply batteries for 150,000 EVs. Hyundai and Kia have a plan to launch a total of 23 new EV models in the next five years. In order to expand the range to include sedans, SUVs, and the Genesis luxury brand, stable procurement of batteries, a key component, has been an issue. The company's first joint venture plant will lead to a long-term shift to EVs.

In order to build the joint venture plant, the company will receive corporate tax and tariff exemptions from the Indonesian government. The Indonesian government is aiming to build a cluster of EV-related industries against the backdrop of abundant reserves of nickel, a key material for EV batteries. According to the U.S. Geological Survey, the country's estimated nickel reserves as of 2008 are the world's largest at 21 million tons. The government has decided to embargo raw nickel in order to attract foreign investment.

Source: The Nikkei

PSR Analysis: In **last month's issue of PowerTALK**, I wrote that Hyundai and LG are building a battery plant in the U.S., and now they are going to set up another plant in Indonesia. I have to admit that I was surprised by their speed. The battery business has become a trend, and battery procurement is getting more and more intense, but while Japanese automakers have yet to report that they are building new plants, South Korea is moving very fast.

Indonesia is also targeting China and the US. In this kind of movement, speed is the most important factor, and it is very difficult for a latecomer to overtake a predecessor. Of course, Indonesia is very determined to use nickel, its own strategic material, to gain benefits from other countries, and it seems to be exploring which countries might be suitable partners.

In any case, the demand for batteries is sure to increase in the foreseeable future, and Hyundai and LG are rightly making efforts to develop a system that can adequately supply this demand. **PSR**

Click Here To Go To Page 1

Far East Report

Continued from page 15

極東 > 韓国レポート:

現代自とLG化学、インドネシアに1200億円で電池工場

現代自動車とLG化学は7月29日、インドネシアにEV向けの電池工場を建設すると発表した。投資額11億ドル（約1200億円）を折半負担する。ニッケル埋蔵量が世界最大のインドネシアで電池を量産し、世界各地の現代自と起亜の完成車工場に供給する。

ジャカルタ中心部から南東約65キロのカラワン地域の工業団地にある33万平方メートルの敷地に新工場を設立する。年内に着工して2024年には量産を始める。年間生産能力は10ギガワット時で、EV15万台分の電池を供給できるという。現代自と起亜は今後5年間で計23車種のEV新モデルを発売する計画を持つ。セダンやSUV、高級ブランド「ジェネシス」にも広げるために基幹部品の電池の安定調達が課題だった。同社初の合弁工場とすることで長期的なEVシフトにつなげる。

合弁工場の建設にあたって、インドネシア政府から法人税や関税の減免を受ける。同政府はEV用電池の主要材料となるニッケルの豊富な埋蔵量を背景に、EV関連産業の集積を目指している。米地質調査所によると、20年時点のニッケル推定埋蔵量は2100万トンと世界最大だ。政府は外国企業の投資を呼び込むために未加工ニッケルの禁輸に踏み切った。

出典: 日経（一部筆者により元記事内容を改編しました）

PSR 分析: 先月号のPowerTALKで現代のLGが米国にバッテリー工場を建設すると述べたばかりだが、あらたに今度はインドネシアでも工場を設立するという。彼らのスピード感に私は正直に言って驚いている。バッテリービジネスは今やトレンドになっており、バッテリー調達は激化する一方だが、日本の自動車メーカーにおいては新工場を建設するという報道は未だにされていない中で韓国の動きは非常に速い。インドネシアは中国や米国も狙っている。こうした動きは速度が最も重要であり、後発のアクションが先行者を追い抜くのはなかなか難しい。もちろんインドネシアはしたたかで、自国の戦略物資ともいえるニッケルを使って各国から利益を得ようとしており、どの国が適したパートナーになり得るかを探っているようにも見える。いずれにしても今後バッテリー需要は当面は強まることが確実であり、この需要に適切に供給できる体制を整備する努力を、現代とLGは正しく続けていると言えるだろう。**PSR**

Click Here To Go To Page 1

SouthEast Asia: Indonesia Report

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

COVID-19 Delta Variant Disrupts Supply Network

In Southeast Asia, where the delta variant of the COVID-19 is spreading rapidly, business activities are becoming stagnant. In response to government regulations and the rapid increase in the number of infected people, major Japanese companies such as Toyota and Panasonic have suspended production at some of their plants. In addition to the decline in local sales, the disruption of the supply chain has also affected production in Japan.

Toyota has sequentially shut down all three of its plants in Thailand since July 20. The company has not yet decided when to resume operations because it has been unable to procure parts due to an outbreak of infection at one of its customers' plants. Honda also shut down one of its plants in Thailand from August 3 to 5.

Since June, countries in Southeast Asia have tightened restrictions on activities in response to the COVID-19.

Thailand has extended the deadline for sealing off Bangkok and other cities until the end of August. Factories will be allowed to operate but will be ordered to close temporarily in the event of a mass infection. Malaysia continues to impose strict restrictions on economic activities in Kuala Lumpur and other cities, setting limits on the types of businesses that can operate and the number of people who can come to work.

Indonesia's medical system is under pressure due to the rapid increase in the number of infected people, and there is a growing trend to send expatriates and their families home. Toshiba is allowing expatriates and business travelers to work from home and return to their home countries if they wish to do so. In Vietnam, a curfew in Hanoi and Ho Chi Minh City has hampered logistics and other operations. The Philippines will tighten restrictions on movement and activities in the Manila metropolitan area from April 6, introducing the strictest of the four measures.

Parts produced in Southeast Asia are also exported to Japan, and the impact on domestic production activities has been spreading. Japanese companies have been shifting their production to Southeast Asia. The Association of Southeast Asian Nations (ASEAN) accounted for about 16% of Japan's total imports in 20 years.

Toyota has decided to temporarily shut down its three plants in Aichi Prefecture due to the stagnant supply of parts from Vietnam. Honda is also planning to suspend its Suzuka Plant for seven days in August due to stagnant parts supply from Indonesia.

Source: The Nikkei

PSR Analysis: Southeast Asia, which has been able to contain the infection better than Europe and the United States, is now being affected by the onslaught of

Click Here To Go To Page 1

SouthEast Report

Continued from page 17

Many foreign companies, not only Japanese but also Chinese, South Korean, and US companies, are operating in Southeast Asian countries, but many of them are being forced to limit their actions in the region.

the delta variant. Many foreign companies, not only Japanese but also Chinese, South Korean, and US companies, are operating in Southeast Asian countries, but many of them are being forced to limit their actions in the region. I have heard that security is worsening in some areas, such as the coup d'etat in Myanmar and the demonstrations against the current government in Thailand. In the automotive industry in particular, there is another problem, the shortage of semiconductors, and a combination of factors is slowing down production.

The biggest problem is that it is impossible to predict how long it will take for this to subside. The supply chain will inevitably be affected, with Toyota already temporarily shutting down three of its plants in Japan due to stalled parts supplies from Vietnam, and Honda shutting down its Suzuka plant in Japan due to stalled parts supplies from Indonesia. The spread of COVID-19 infection in Southeast Asia is not only a problem in Southeast Asia. BCP will become even more important in the future.

東南アジア > インドネシアレポート:

COVID-19デルタ型猛威で供給網寸断 日本生産に波及も

新型コロナウイルスのデルタ株が急拡大する東南アジアで、企業活動の停滞が広がっている。各国政府の規制や感染者急増を受けて、トヨタ自動車やパナソニックなど日系大手が一部工場で生産を停止した。現地での販売減少だけでなく、サプライチェーン（供給網）の寸断で日本での生産にも影響が出ている。「タイの感染拡大は予想より深刻だ。自動車産業は猛烈な影響を受けている」。トヨタの山下典昭タイ法人社長は厳しい見方を示す。同社は7月20日以降にタイにある全3工場を順次停止した。取引先の工場で集団感染が起こり、部品を調達できなくなったためで、再開時期は未定だ。ホンダもタイの1工場を8月3～5日に停止した。

東南アジアでは6月以降、各国が新型コロナ対策で行動制限を強化した。タイはバンコクなどの都市封鎖の期限を8月末まで延長した。工場の操業は認められるものの、集団感染が起きた場合は一時的な閉鎖を命じられる。マレーシアはクアラルンプールなどで厳格な経済活動制限を続けており、操業可能な業種や出社人数に制限を設けている。インドネシアはジャワ島やバリ島などでの行動制限を9日まで延長した。インドネシアは感染者急増により医療体制が逼迫しており、駐在員や家族らを帰国させる動きも広がる。東芝は、駐在員や出張者には在宅勤務などを徹底させ、希望者には帰国を認めている。

ベトナムはハノイやホーチミンの外出禁止措置により物流などに支障が出ている。フィリピンは6日からマニラ首都圏で行動・移動制限を強化し、4段階で最も厳しい措置を導入する。

東南アジアで生産する部品は日本にも輸出されており、国内の生産活動にも影響が広がってきた。日系企業は東南アジアへの生産シフトを進めてきた。日本の20年の輸入総額のうち東南アジア諸国連合（ASEAN）は約16%を占める。

トヨタはベトナムからの部品供給の停滞を受け、愛知県内3工場の一時停止を決めた。ホンダもインドネシアからの部品供給の停滞などを理由に、鈴鹿製作所（三重県鈴鹿市）を8月に7日間停止を予定する。

Click Here To Go To Page 1

SouthEast Report

Continued from page 18

出典: 日経

PSR 分析: これまで欧米と比較して感染をうまく封じ込めてきた東南アジアが現在はデルタ株の猛威の影響を受けている。東南アジア各国に進出している外資系は日本のみならず中韓をはじめ米国など多くあるが、それらの企業の多くが現地でのアクションを絞らざるを得ない状況になりつつある。ミャンマーでのクーデターやタイでの現政権への批判デモ等、地域によっては治安が悪化しているという話も聞く。

特に自動車業界においては半導体不足というもうひとつの問題があり、複合的な要素が絡まって生産が鈍化している。最大の問題はこれがいつまでに沈静化するか、見通しが不可能であることだ。サプライチェーンへの影響は必至であり、すでにトヨタはベトナムからの部品供給が停滞したことで、日本の3か所の工場で一時停止、ホンダもインドネシアからの部品供給停滞で日本の鈴鹿工場を停止する。東南アジアで起きているCOVID-19感染拡大は東南アジアだけの問題ではない。今後はBCPの重要性がさらに高まっていく。**PSR**

India Report

By Aditya Kondejkar, Research Analyst – South Asia Operations.

PM Launches Vehicle Scrappage Policy

Vehicles will not just be scrapped by their age, but also if they are found to be unfit in automated testing. The vehicle scrappage policy will bring in investments of around INR 10,000 crore to set up 450-500 Automated Testing Stations (ATS) and 60-70 Registered Vehicle Scrapping Facilities (RVSF) across the country.

Read The Article

Aditya Kondejkar

PSR Analysis: Under the Voluntary Vehicle-Fleet Modernization program (VVMP), the government plans to set up between 450-500 automated vehicle fitness testing stations across India on a public-private partnership (PPP) basis involving private firms and state governments. A total of 60-70 vehicle scrapping centers will also be built; these stations will be situated no further than 150-200 kilometers away from any location in India. A total of seven agencies – including Tata Motors – have signed a Memorandum of Understanding (MoU) with the government today for this project. Tata Motors' vehicle scrapping center will be set up in Gujarat, will scrap both passenger and commercial vehicles and will have the capacity to recycle up to 36,000 vehicles a year.

The success of the scrappage policy depends on auto OEMs and other stakeholders, as we require an ample number of Automated Fitness Centers and scrapyards to create a proper environment for scrapping the vehicle. The fitness centers will keep records of the fitness of vehicles, the criteria of which

Click Here To Go To Page 1

India Report

Continued from page 19

includes braking test, emission test, and checking of safety components as per the regulations.

Apart from the fitness centers, many modern and compliant scrapyards would be required across the country to carry out this enormous task. Identifying locations and obtaining green clearances for these scrapyards will be another challenging task. **PSR**

Russia Report

By Maxim Sakov, Market Consultant, Russia Operations

Sales of Agriculture Machines in Russian Increase 50%

Maxim Sakov

The Russian market for AG machines has increased by 1.5 times during the first six months of this year, reaching 93.9 billion rubles (US$ 1.27 billion). Production volume has increased by 45% to 112.7 billion rubles (US$ 1.54 billion).

The largest growth has been in the output of plows, climbing to 1,800 units and AG tractors – by 43% to 2,800 units. Production of sprayers has increased by 37.3% to 953 units. There has been a modest gain in production of grain combines, increasing 10.2% to 3,800 units, and self-propelled mowers, gaining 2.6% to 228 units.

The domestic media has published information that experts have reduced the forecast about grain harvest. However, vice-president of the Russian Grain Union Korbut says there are no such threats. **Read The Article**

PSR Analysis: Among the reasons of such growth are the recovery from the pandemic, high prices for grain, expected future price growth for machines based on metal price growth and possible depletion of the money, assigned by the State to subsidize purchase of local AG machines. If this fund is depleted, the prices for machines will go up by 25% at once. From the other side, the sales growth is restricted by the deficit of some machines, like combines and sprayers. In this case, the production cannot catch growing demand.

KAMAZ Has Started Making Parts for Aurus Cars

KAMAZ will become a supplier of key parts for luxury Aurus cars. According to the OEM's press-service, the company has started production of cylinder blocks, block heads and base plates of NAMI-4123 engines used in Aurus models.

At the moment, however, we are talking about the development of technological processes, so the parts are produced using experimental methods. Serial Aurus cars now uses imported blocks and heads. As soon as KAMAZ ensures high quality of parts, they will be substituted for imported parts.

Click Here To Go To Page 1

India Report

Continued from page 20

For KAMAZ this item must be made of premium quality. It has special requirements – low car weight and engine power of about 600 hp. Such quality requires using special processes – alloy, casting, etc. The part has very thin partitions – about 4-5mm. Such parameters cannot be reached with existing technology.

Mass production of heads and cylinder blocks for Aurus cars on KAMAZ should start next year. **Read The Article**

PSR Analysis: Aurus is a Russian luxury car (similar to Rolls-Royce), developed by the NAMI institute. Its engine was developed in co-operation with Porsche. The final target of the project is to make this high-end car out of 100% of local components.

Czech Republic Develops Electric UAZ Hunter SUV for 3.5 million Rubles

The regular powertrain in the SUV has been replaced by an AC motor, and inside the car they've installed digital panel.

The Czech start-up MW Motor has created an electric car based on the UAZ Hunter. Today, the company has begun taking orders for the new vehicle. According to "Tesla Magazine", prices for "green SUV" start from €39,900. Cars are available with left or right steering wheel. Also, Czechs are offering test-drive of SUV in Dobrzahny.

The regular engine has been replaced by an AC motor. SUV retains a 5-speed manual transmission and AWD. The motor output is 160hp. The battery gives from 56 to 90 kWt/hr.

The electric vehicle is 120 kg heavier than the regular UAZ Hunter. Drive reserve starts from 240 km. Fast charge option is available. It can charge battery by 80% for "lunch break".

According to the developers, the new electric SUV should be popular among farmers, miners and forest workers, whose activities are going off road. **Read The Article**

PSR Analysis: UAZ Hunter (standard gasoline version) is a slightly modified UAZ-469 SUV. Its mass production was started in 1972. At the moment, its price in Russia starts at €10,000. It cannot be exported to EU because of the ecological standards. So, its electric version is quite an interesting project, with the exception of huge mark-up. **PSR**

Click Here To Go To Page 1

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-Forecast Data
- **CV Link™** – Commercial Vehicle Production-Forecast Data
- **OE Link™** – Original Equipment Production-Forecast Data
- **OE Link-Sales™** – Original Equipment Sales-Forecast Data
- **PartsLink™** – Engine and Original Equipment Population Data
- **MarineLink™** – Boat Production and Engine Installation Data
- **MarketTRACKER™** – Several individual quarterly syndicated surveys
- **PowerTRACKER™NA** – 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** – Special component packages with databases

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, spot-on **solutions** to our clients' needs.

