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Alternative Power Report

By Guy Youngs, Forecast & Adoption Lead

Subway is teaming up with Miami-based GenZ EV Solutions to provide an "EV charging oasis" of the future so you can eat while your EV charges.

Subway To Add EV Charging Stations

Guy Youngs

In the August 2022 issue of PowerTALK, we reported that Tesla had deployed cube lounges at Supercharger stations with automated coffee, food, and even a swimming pool. Well, the Subway sandwich folks want to get in on the act, too.

Subway is teaming up with Miami-based GenZ EV Solutions to provide an "EV charging oasis" of the future so you can eat while your EV charges. Starting in 2023, "Subway EV charging oasis" parks with multiple spots, picnic tables, Wi-Fi, restrooms, green space, and playgrounds will be installed at select locations. As part of the plan, new or freshly remodeled stores will get small-format, fast EV charging stations.

Source: *Electrek* **Read The Article**

PSR Analysis: Subway is joining the movement to make the recharge wait time more enjoyable to customers, and at the same time generate an alternative revenue stream. Providing customers with things to do while they wait could encourage use and even develop into a go-to location.

Lithium-Air Battery Could Offer Longer Range

Most owners of electric cars have wished for a battery pack that could power their vehicle for more than a thousand miles on a single charge, and Range Anxiety is a big issue for EV adoption. Researchers at the Illinois Institute of Technology (IIT) and U.S. Department of Energy's (DOE) Argonne National Laboratory have developed a lithium-air battery that could make that dream a reality.

The main new component in this lithium-air battery is a solid electrolyte instead of the usual liquid variety. Batteries with solid electrolytes are not subject to the safety issues of liquid electrolytes used in lithium-ion and other battery types, which can overheat and catch fire.

The battery chemistry with the solid electrolytes can potentially boost the energy density by as much as four times above lithium-ion batteries, which translates into longer driving range.

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

PSR Analysis: Range or machine operating time are big inhibitors to the adoption of EVs/ Electric machines so anything that improves that is a big plus. The lack of a safety issue (overheating and potential fire) is also a significant plus.

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Alternative Power Report

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Has Battery Recycling Arrived Too Soon?

There is a recent report from the *Washington Post* with a scary title: "EV Battery Recycling Has Boomed Too Soon." There aren't enough used electric vehicle batteries to meet even 10% of the raw material demand for electric vehicles made in the US, the Washington Post says.

Meanwhile, the US already has more battery recycling capacity than it has batteries available to recycle, with more public and private battery recycling facilities planned or under construction. The Post concludes its report with this pithy statement: "Many of these investments are destined to fail. Those few that succeed will do so only by diversifying away from recycling, at least temporarily."

Currently, defective batteries that go directly from manufacturing to the scrap heap account for about three-quarters of batteries recycled in US and global battery plants. That percentage will decline as battery manufacturing technology improves, leaving less scrap available for recycling.

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

PSR Analysis: Those batteries last a long time (up to 0.5 million miles according to Elon Musk) and when they are no longer suitable for their original purpose, they have a second life and can be used for grid-scale energy storage or sold to EV owners who need to replace their batteries but don't want to pay for a new one and are willing to accept shorter range and lower performance in order to save some money. However, companies like Redwood Materials, a leading battery recycling company, will undoubtably have taken this into account.

Nikola Plans To Develop Hydrogen Fuel Network

The lack of a refueling infrastructure is one of the largest challenges facing H2 development, so Nikola plans to start building a hydrogen fuel network. The network would make it possible for H2-powered vehicles to refuel conveniently, particularly when those vehicles are the company's own trucks.

The company has already started the construction of H2 plants in order to produce the H2 necessary to supply the hydrogen fuel network. Once those are in place and the refueling stations are built, it will become feasible for companies to begin including H2-powered trucks in their fleets.

Source: *Hydrogen Fuel News* **Read The Article**

PSR Analysis: Evolution and growth of this segment continues. It was not that long ago when diesel fuel gained popularity in the automotive world, and similar statements about diesel availability were common. It took a few years for locations other than truck stops and farm stations to start dispensing; infrastructure is the key. **PSR**

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Global Report

PSR Team Report

CONEXPO 2023 Features Hydrogen, Electric Equipment

Walking CONEXPO 2023, the giant international construction show in Las Vegas this month, it was obvious that OEMs are devoting huge resources to developing alternative power sources for their compact equipment.

Hydrogen powered units and battery packs were common and new products powered by alternative energy sources were popular with attendees. New technology was the name of the game at this year's show.

However, there were several prototypes that were built only for the show, according to some exhibitors, and were not likely to be put into mass production anytime soon. In fact, one manufacturer told us, "This was manufactured for the purpose of the exhibition and is not intended for mass production."

Major new technology-related exhibits that we saw include:

- **REMOTE CONTROLLED** systems. A driver's unit consisting of a seat, monitor, joystick, etc., and an Internet connection to operate a remote dozer or excavator.
- **BATTERY-POWERED** construction equipment (mostly mini-excavators).
- **FUEL CELL** powered trucks (Volvo Construction Equipment) and engines (HDI, Kubota, and others.)

CONEXPO 2023 sprawled across three million square feet—that's equivalent to about 50 football fields—making room for more than 2,400 exhibitors, according to show managers. Officials said more than 139,000 individuals visited the five day show, which ran March 14-18.

We focused our attention on the new products powered by hydrogen and batteries, and we came away impressed with several new items. Here are just three examples.

- **Bobcat T7X Electric Compact Loader.** This unit delivers all the functionality of its traditional diesel counterparts but offers the advantage of using 50% fewer components, which translates to fewer parts to replace over the lifetime of the machine.

  Additionally, there are 96% less fluids used on the T7X relative to similar diesel compact loaders. Bobcat has achieved this fluid reduction by eliminating the need for a hydraulic reservoir and hydraulically actuated cylinders and attachments. Instead, the machine uses all electric driven means of actuation. The elimination of these types of fluids means less time maintaining and preventing leaks over the machine lifetime.

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A typical battery charge cycle results in 4-5 hours of operating time for the T7X. The T7X was originally introduced at CONEXPO 2020 but that was merely an early prototype. The current version on display at the CONEXPO 2023 is the production version.

An exclusive rental agreement was reached in September 2022 making Sunbelt Rentals the primary channel for rental users to take advantage of the innovative design features Bobcat has integrated into these compact loaders traditionally been dominated by diesel.

The T7X offers customers a chance to reduce their carbon footprint and is ideal for jobs in areas that require zero emissions as well as indoor and night operations where noise is a major consideration.

At this time, the Bobcat T7X appears to fill a niche role in the overall market of compact loaders. As more experience is gained with this technology it appears to be a good example of how end-users may adapt to innovation and build upon their experiences. End-users will likely continue to gain more confidence and "buy-in" of the advantages offered by an all-electric when evaluating machine lifetime and total costs of ownership for diesel vs. battery-electric.

- **JCB**. Perhaps one of the most advanced new products was that offered by JCB with the display of its hydrogen internal combustion engine (HICE).

At the show, JCB took the wraps off its new hydrogen combustion engine, the company's zero-carbon emissions solution for construction and agricultural equipment.

Initially, JCB had designed an excavator that used a hydrogen fuel cell. But after extensive testing, JCB decided fuel cell technology was not the best option for their customers at this time, and they decided to move toward a hydrogen internal combustion engine solution.

Now, JCB is investing $US 120 million (£100 million) to produce super-efficient hydrogen engines and has showcased working prototypes of a backhoe loader and telescopic handler powered by hydrogen.

They also have announced another industry first – a mobile hydrogen refueller, providing a quick and easy way for customers to refuel machines on site. About 97% of construction machines have fuel delivered to them on site, and customers are used to using transportable fuel, which allows refueling onsite in minutes.

JCB also has a range of compact electric-powered vehicles, including the 525-60E Loadall telehandler and the 19C-1E mini excavator. In July 2020, JCB released the construction industry's first hydrogen powered excavator, the 20 ton 220X.

JCB has developed a diversified approach to its product offerings, one that uses multiple forms of alternative fuel and one that helps achieve carbon-neutral goals. Currently, the most important and most mature alternative is hydrogen.

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Although electrification as a major trend certainly seems to exist, the question of how it should be implemented in the construction machinery segment is still at the trial and error stage for many OEMs, dealers, and users.

- **DEVELON**—formerly called **Hyundai Doosan Infracore (HDI) Construction Equipment** -- demonstrated two autonomous vehicles. The upgraded Concept-X2 fully automated remote controlled construction equipment uses state-of-the-art information and communications technology. The CX225 crawler excavator and CX100 dozer feature cabless designs, autonomous driving and blade control.

  Develon claims the Concept-X2 could optimize future construction sites through increased productivity, and reduced costs and risks. Here are some details: **https://bit.ly/3yIxeL1**.

SUMMARY. Many of the battery-powered construction equipment units on display at ConExpo were mini-excavator prototypes, and many companies said they did not have immediate plans for mass production, but several noted it was under consideration.

Specifications for many units did not seem to allow the machine to replace a conventional diesel engine. In particular, the short operating time for many units is a major disadvantage for users.

In some off-road locations where it is difficult to receive power from the grid, diesel engine-driven generators are brought in to operate electric construction equipment. This is a complete reversal from the perspective of reducing emissions, and simply adds to the hassle.

Although electrification as a major trend certainly seems to exist, the question of how it should be implemented in the construction machinery segment is still at the trial and error stage for many OEMs, dealers, and users.

It seems unlikely that electrification of construction equipment will proceed as quickly as it has in the case of automobiles but new product introduction and prototypes, as displayed at CONEXPO 2023, are an important step in the process to familiarize and acclimate the industry to these new technologies. Europe is more likely to move in that direction in a straight line, but what will happen in North America, Asia, and other regions remains to be seen.

At this stage, it seems that digital technologies, such as such as automated driving and land scanning and analysis, are capable of having the greatest impact on improving efficiency in construction operations for the short term.

While these digital technologies continue to improve efficiencies, the uptake of alternative energy sources will progress at a slower pace in cadence with industry acceptance. **PSR**

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Electric Boat Market Forecast To Grow by 12%

By Michael Aistrup, Senior Analyst

Michael Aistrup

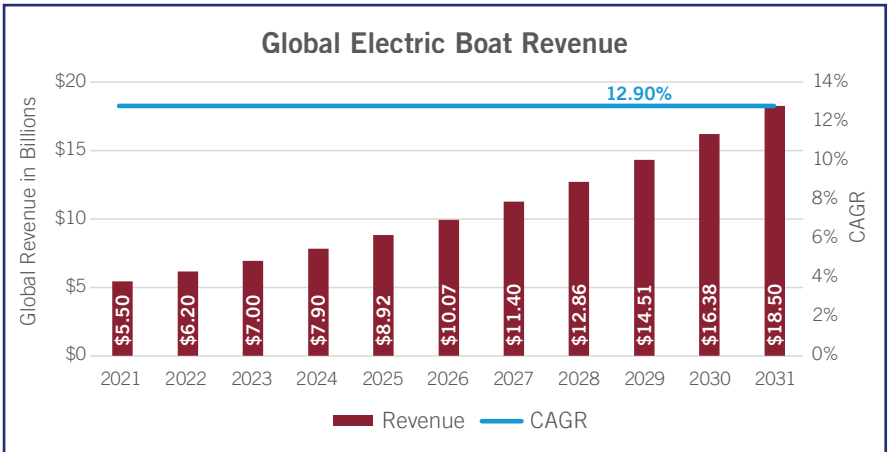
Gas-powered engines have been the backbone of boating since the advent of the internal combustion engine, but electric-powered boats could soon be claiming a significant share of the market.

Most of the fuel used in transportation is petroleum-based, but initiatives by many governments to reduce carbon emissions and to encourage consumers to adopt eco-friendly boats and ships is expected to boost growth of the electric boat market. The electric boat industry is still in early stages of development and there is a potential for growth.

Electric boats are defined as marine vessels with electric drive as propulsion. Electric boats can be only electric, hydrogen fuel cell electric, or hybrid electric.

E-Boats run on clean energy and do not create any pollution. Batteries used in electric boats are very similar to those used in electric vehicles. A battery bank stores energy to propel electric boats. The motor controller converts direct current into alternating current, while the electric motor allows boats to operate, offering control of the boat.

The global electric boat market was valued at $5.0 billion in 2021 and is projected to reach $18.5 billion by 2031, growing at a CAGR of 12.9% from 2022 to 2031.



Source: Power Systems Research

Demand Drivers:

- INCREASED pollution levels and a growing awareness of climate conservation has caused many businesses/consumers to shift to green technology using battery powered boats.
- GOVERNMENTS ARE implementing emission regulations that regulate air pollution.

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Electric boating is still in its infancy, and it is experiencing some growing pains.

- ORGANIZATIONS such as the International Maritime Organization (IMO) have implemented numerous regulations.
- GROWTH in the marine tourism/recreational industry.
- GROWTH and development of battery charging infrastructure.
- TECHNOLOGICAL advancements, especially in battery technology.
- ELECTRIC BOATS run on clean energy and offer quiet engines, lower operating costs and reduced maintenance.
- INCREASED "staycations" due to Covid.

Restraints on Electric Boat Market Growth:

- LIMITED capacity of batteries
- HIGH COST of electric propulsion systems
- LIMITED number of charging stations

Solar electric boats offer numerous benefits, including low maintenance requirements, fewer vibrations, fuel economy, no oil/gas contamination, and a decrease in overall weight.

Solar energy helps control the flow of electricity to rechargeable batteries, and solar-electric boats can run at low operational costs, making them the most preferred option for users compared to fuel-based boats with a high need for regular maintenance. These benefits are expected to bolster the demand for solar-electric boats in the coming years.

Electric boating is still in its infancy, and it is experiencing some growing pains. Electric boating is sorting out how it can produce key performance metrics such as range, total energy output, and reliability that are on par with gas-powered boats, but the advantages of electric boating are emerging as a viable alternative to gas-powered engines. **PSR**

North America Report

By Chris Fisher, Senior Commercial Vehicle Analyst

Cummins Agnostic ICE's and Hydrogen Fuel Update

Cummins plans to introduce their agnostic ICE engine platforms with testing to begin in 2024 and series production to start in the 2026/2027 timeframe. The engine platforms use a common base engine. Below the head gasket the engines will mostly have similar components and above the head gasket the engine will have different components for different fuel types. The new platforms will include the B6.7, X10 and the X15 engines. The X10 will ultimately supersede the current L9 and X12 engine platforms.

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In North America, Cummins plans to introduce the agnostic engine platforms starting in 2026. Diesel and natural gas will be the first fuel types introduced and hydrogen versions will soon follow.

Chris Fisher

Sources: FleetOwner, Cummins X Series Agnostic Engines, Cummins Agnostic Overview

PSR Analysis: We believe the engines initially will be installed in the major OEM's medium and heavy trucks with selected fleet testing likely starting in 2024. The engine platforms include the B6.7 liter, the X10 and eventually the X15 liter engine starting series production in the 2026/2027 timeframe. The B6.7 liter engine will be offered with diesel, natural gas, gasoline and propane while the X10 and X15 lines will be available in diesel, natural gas, and eventually hydrogen versions.

Cummins is developing the agnostic B6.7L engine for Europe. Production is likely to begin ahead of the Euro VII emission regulation and it is likely that the DAF and Daimler may be early adopters. Like North America, Lower hydrogen cost and expanded fueling infrastructure would be needed before any significant hydrogen vehicle adoption would occur.

Cummins is also entering the hydrogen fuel cell segment. By 2024, Cummins plans to provide 20 proton exchange membranes (PEM) to Scania in the Netherlands. The PEM's will then be integrated into Scania's existing battery electric truck platform. The trucks will be delivered to HyTrucks that same year. Cummins and Daimler plan to upfit the Freightliner Cascadia platform with hydrogen fuel cells based upon the Cummins fourth-generation fuel cell powertrain with initial delivery in 2024. Initial volumes will be relatively low primarily due to the high cost of hydrogen and a lack of re-fueling infrastructure. **PSR**

DATAPOINT: *North America Harvesters*

470

By Carol Turner, Senior Analyst, Global Operations

470 units is the estimate by Power Systems Research of the number of harvesters to be produced in North America in 2023.

The combine harvester, often simply called a combine, is a machine that harvests grain crops. The name derives from its combining three separate operations comprising harvesting—reaping, threshing, and winnowing—into a single process.

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.

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Market Share: With 52% of total units produced, Deere leads in production of harvesters in North America. In second position, with combined plant total, is Oxbo International with 25%; third, Flory with 10%.

Exports: Collectively, up to 1% worldwide.

Trends: In 2022 production of Harvesters in NA decreased a nominal 1%, but production is expected to gain 10% in 2023. The Ag industry has fluctuated recently and demand for new products declined a few years ago due to falling commodity prices. Farmers couldn't afford new equipment and for several years they simply refurbished existing units.

Currently, it appears that growers are moving from manual to machine harvesting. They are increasingly using over-the-row mechanical harvesters to pick produce and similar commodities. This type of machinery reduces the need for manual labor during labor shortages. The increase in harvester production is also attributed to the desire for new machinery that increases productivity. Expect production to fluctuate over the next 3-5 years with an increase of 5% by 2025. **PSR**

Brazil/South America Report

By Fabio Ferraresi, Director Business Development South America

WEG Building Plant for EV Batteries in Brazil

Fabio Ferraresi

Brazilian WEG has announced plans for a new 6,000 m2 plant in Jaraguá do Sul, Santa Catarina, Brazil, to produce battery packs for EVs. With the investment, the annual capacity will be 1 GWh in battery packs. WEG plans a highly automated plant, with 140 direct employees; WEG's timeline calls for completion of the plant in 1H 2024.

Source: *Automotive Business* **Read The Article**

PSR Analysis: WEG aims to supply EV production for OEMs located in Brazil. With strong background in drives and industrial electrical components, WEG could be a natural selection for many OEMs in Brazil.

Fras-le Acquires Juratek in UK

Fras-le announced plans to acquire the operations of AML Juratek, the parent company of Juratek and BettaParts, which operate in the UK and European aftermarket, with lines of braking products such as discs, brake pads, calipers and actuators. Fras-le said it intends to invest about US$ 22 million (£ 18.2 million) in the acquisition.

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In Europe, Fras-le already operates with a distribution center in the Netherlands and a commercial office in Germany.

Fras-le will continue to work in the European market with the Juratek and BettaParts brands and will receive the reinforcement of the other iconic brands of the company in the global market, such as Fras-le and Fremax, expanding business possibilities. In 2022, AML Juratek recorded revenues of approximately £25 million.

The acquisition is added to Fras-le's global structure of operations, currently present with industrial units in Brazil, the United States, China, Argentina, Uruguay and India, as well as distribution, technology and development centers and commercial representations to serve customers in more than 120 countries on five continents.

In Europe, Fras-le already operates with a distribution center in the Netherlands and a commercial office in Germany.

Source: *Automotive Business* **Read The Article**

PSR Analysis: Despite the relatively small investment, the move allows Fras-le to access an important market and gain mature market channels and reputation. With international business support, strong R&D and competitiveness, Fras-le could repeat the success of international expansion in other markets, such as the USA and India. **PSR**

Europe Report

By Natasa Mulahalilovic, Marine Pleasure Boat Analyst-Europe–Europe

Rolls Royce Power Systems Posts Record Year in 2022

Natasa Mulahalilovic

Rolls Royce Holdings' 2022 Annual Report shows significant performance improvement compared to 2021. Its four business units posted revenue of £12.691 m (£10.947 m in 2021), gross profit of £2.477 m (£1.996 m in 2021) and operating profit of £652 m (£441 m in 2021). Civil aerospace business unit made 49% of the revenue, Defense 29%, and Power Systems 26%.

The Power Systems business unit is the home for the mtu brand developing and manufacturing power systems and solutions for commercial marine, industrial, defense and yachts as well as power generation. Headquartered in Germany, it closed the year with a record revenue of £3.347 m, a gain of 23 % comparing to the prior year. Orders for 2022 were £4.3 billion, 29% higher than the orders placed in 2021.

The main contributor to this revenue improvement comes from power generation products which 34% provided of total revenue. The second bestselling solutions and products are power systems for marine commercial and pleasure yachts

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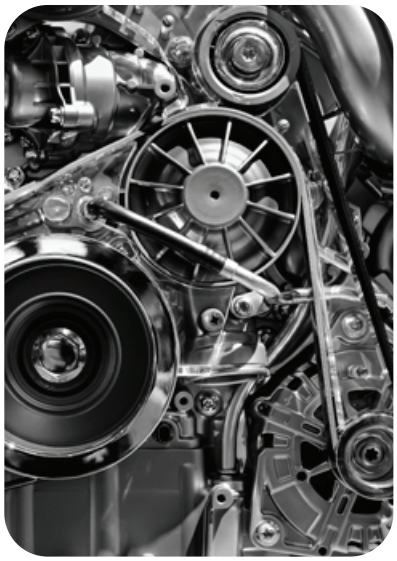

industry contributing to the revenue result with 31%, followed by industrial with 25% and defense with 10%.

Operating profit was at £281 million. It went down slightly YoY, from 8.8% to 8.4%, due to high inflation, significant investments into R&D and write-downs of assets due to the war in Ukraine.

In 2022, Power Systems secured a long-term contract with the British army for 523 engines for Boxer vehicles to be delivered between 2022 and 2030. The five-year plus two in option contract was signed with the Royal Navy for service support for more than 90 mtu sets installed in five different types of vessels.

The contract with the leading UK luxury yacht manufacturer Ferretti Yachts was extended to 2027 for the continuous supply of marine engines and NautiQ bridge systems.

Power Systems agreed with the Dutch SemperPower to develop a large-scale battery storage system that supports the integration of renewable energy sources in the Netherlands; it's the biggest in the country.

The main challenge in 2022 was supply chain and inventory management. The supply chain has been impacted by the turbulence in the Chinese economy present all year. The business suffered heightened disruption of the production and the output in-time delivery. Reopening of the Chinese economy and manufacturing facilities across China near the end of 2022 helped reduce the production cycle and stimulate the inventory management recovery.

One of the Rolls Royce Power Systems main priorities remains sustainability and net zero value emission by 2050. Actively working on sustainable projects, mtu developed and installed two Hybrid PowerPacks into the world's first HybridFlex passenger train that ran from London to Aylesbury in the UK reducing CO2 emissions by up to 25%.

Power Systems also acquired a 54% stake in the German electrolyze stack company Hoeller Elektrolyzer to develop mtu electrolyzers for producing green hydrogen. Meanwhile, an agreement with a solar park with 3.7 MWp capacity in southern Germany was signed. The park will generate around four million kilowatt hours of electricity for Power Systems annually. This power generation source saves 1,300 tons of CO2 per year compared to electricity available through the German grid network.

Rolls-Royce is also taking actions to reduce greenhouse gas emissions in shipping. The engines of the mtu Series 2000 and Series 4000 will be approved for sustainable fuels such as e-diesel and HVO in 2023, enabling climate-neutral operation. New technologies such as methanol engines and CO2-free fuel cell systems are also already under development.

Superyacht manufacturers the Italian SanLorenzo and the German Lurssen are taking part into this revolutionary project. The hybrid PropulsionPack of the

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mtu Series 2000 and Series 4000 is planned to be launched in 2023. The new propulsion system integrates diesel engines with electric propulsion modules, batteries, gearboxes, control and monitoring system and other components accomplishing a maximal power of 10000 kW per boat. **PSR**

China Report

By Jack Hao, Senior Research Manager - China

Komatsu To Cut China Production Capacity by 40%

Jack Hao

Komatsu says it plans to restructure its business in China this year, cutting its annual production capacity of construction machinery equipment in China by nearly 40% to 10,000 units.

At the same time, due to sluggish market demand, it will merge its equipment production subsidiary and its parts subsidiary in Jining City, Shandong Province. The production subsidiary and casting subsidiary based in Changzhou City, Jiangsu Province, also will be merged.

Komatsu's production subsidiaries in the two provinces previously terminated their joint venture relationship. Even if the annual production capacity is reduced to 10,000 units, it is expected that local production capacity will enable Komatsu to increase exports to Southeast Asia and other regions.

After the peak of COVID-19 in 2020, the demand for construction machinery in China recovered rapidly. However, due to the downward cycle of the industry and the slowdown of the real estate market, demand continued to decline. It is expected that the sales volume of hydraulic excavators (excluding local manufacturers) will decrease by 40% to 50% year-on-year in fiscal year 2022 (as of March 2023). Komatsu believes that the downturn in demand will continue for a long time.

Source: *Construction Today* **Read The Article**

PSR Analysis: Shantui and Changlin withdrew from the joint venture with Komatsu in 2021 and 2022. Similarly, in 2022, Komatsu sold four factories producing coal mining machinery to local Chinese companies. This sale include the China factory of the global coal machinery giant Joy Global, which Komatsu purchased for $3.7 billion in 2017.

This additional 40% reduction in participation reflects Komatsu's poor performance in the Chinese market and its reduced optimism towards the Chinese market. In the face of sluggish demand and rapidly changing market conditions, Komatsu has increased its investment in new energy engineering machinery.

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China Report

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At the same time it has adjusted its business in China, it has expanded its exports to the Southeast Asian market.

The cost advantage and service system of Chinese construction machinery enterprises have made up for the slight gap between them and Komatsu in terms of product quality, which has reduced Komatsu's market share in China from a peak of 15% to about 3% today.

Meanwhile, Chinese local enterprises are also engaged in fierce competition in the international market, especially in the Southeast Asian market. In the area of electric engineering of construction machinery, Chinese enterprises are also proceeding very quickly, causing considerable pressure on all foreign-funded enterprises in China. **PSR**

Far East: Japan Report

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

Hitachi Construction Machinery Raises Product Prices

Akihiro Komuro

Komatsu will continue to raise prices substantially in the fiscal year ending March 31, 2024. This will be at the same level as the current fiscal year. The impact of price increases on consolidated operating income is estimated to be in the range of 100 billion yen.

This is approximately 20% of operating income for this fiscal year. Although the impact of high raw material prices will lessen in the next fiscal year, there are concerns about an economic slowdown. While the benefits of the yen's depreciation will diminish, they will build a profitable structure to further increase the operating profit margin from less than 13% in the current fiscal year.

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Far East Report

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Two major Japanese construction equipment manufacturers, Komatsu and Hitachi Construction Machinery, have announced a series of price hikes.

Komatsu's prices increase this fiscal year was only about 4%, and the company has determined that there is room for further price increases next fiscal year. In February this year, Komatsu raised prices for all models of construction equipment and forklifts for the domestic market by an average of 10%.

Hitachi Construction Machinery Co., Ltd., announced on April 28 that it will raise global sales prices for all its construction and mining equipment by an average of 8% from April. The rate of increase will vary by region and transaction.

The price increase is expected to be concentrated in developed countries such as Japan, the U.S. and Europe. Parts prices were raised by an average of 5% in January.

Source: The Nikkei

PSR Analysis: Two major Japanese construction equipment manufacturers, Komatsu and Hitachi Construction Machinery, have announced a series of price hikes. While the background is that costs have increased due to soaring fuel and material costs, it is not a simple strategy to cover such cost increases with price hikes.

The general theory is that a large price hike will slow down sales, but the two companies believe that global demand for construction equipment is firm, and they believe that raising sales prices will not slow down sales and will lead to higher profits. Mining companies are expected to continue capital investment, and there is an abundance of large-scale construction projects for roads, bridges, and railroads in both North America and Southeast Asia. While there may be a short-term slowdown in sales if we look only at this full year, demand for construction equipment will make steady progress in the 3-5 year long-term forecast. **PSR**

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小室 明大 – 極東及び東南アジア リサーチアナリスト

コマツが大幅値上げを継続 / 日立建機、全製品を値上げ

コマツが2024年3月期も今期並みの大幅値上げを継続する。連結営業利益の押し上げ効果は1000億円規模とみられる。今期の営業利益の約2割の規模になる。来期は原材料高の影響は和らぐものの景気減速懸念がある。円安の恩恵も薄まる中、利益を出せる体制を構築し売上高営業利益率を今期の13%弱から一段と高める。インフレ率が高い北米や中南米向けが主力の米建機大手キャタピラーは22年、21年比で約10%の値上げを実施した。コマツの今期値上げ率は4%程度にとどまっており、来期も一段の値上げ余地があると判断した。コマツは国内向けでは今年2月に建設機械とフォークリフトの全機種で平均10%の値上げを実施している。

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Far East Report

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日立建機は28日、建設機械や鉱山機械の全製品のグローバル販売価格を4月から平均8%引き上げると発表した。値上げ率は地域や取引案件によって異なる。値上げは日米欧など先進国が中心になる見通しだという。油圧ショベルやダンプトラックなどが幅広く対象となる。2022年にも平均4%値上げしたが、「エネルギーコストや労務費の上昇が続いており、企業努力で吸収可能な範囲を超えている」という。部品は1月に平均5%の値上げをしている。

PSR 分析: コマツと日立建機という日本建機メーカー大手が相次いで値上げを発表している。燃料や材料費の高騰によるコスト増が背景にはあるが、そのコスト増を値上げでカバーしようというシンプルな戦略ではない。一般的に大幅な値上げを敢行すると販売は鈍化するというのがセオリーだが、グローバルの建機需要は底堅いと両社は見ており、販売価格を引き上げても販売を鈍化させず、増益に繋げられると判断してのことだろう。鉱山会社は設備投資を継続すると見られ、北米でも東南アジアでも道路や橋梁、鉄道などの大規模工事は豊富にある。今年通年だけを見れば短期的な販売の鈍化はあるかもしれないが、3-5年の長期的予測において建機需要は着実に進捗していくだろう。 **PSR**

India Report

By Aditya Kondejkar, Research Analyst – South Asia Operations.

Hyundai Agrees To Purchase GM India Talegaon Plant

Aditya Kondejkar

The agreement covers the acquisition of land and buildings and certain machinery and manufacturing equipment at the General Motors India, Talegaon plant. The proposed acquisition is subject to the signing of a definitive asset purchase agreement, other certain conditions and receipt of approvals from government authorities and stakeholders.

Source: *Economic Times* **Read The Article**

PSR Analysis. Hyundai is expected to expand its annual production capacity in India to some 900,000 units--760,000 units in its two existing plants and 130,000 units in the GM plant. Combined with production volume of its smaller Kia's two plants in India, the total production capacity of Hyundai Motor Group could surpass 1 million units per year.

With the planned acquisition, the Korean carmaker is betting big on the growth potential of the Indian car market. Last year, car sales in India jumped 25.7% to 4.7 million vehicles, the third largest globally after China and the US. In the burgeoning Indian market, Hyundai is the No. 2 brand with almost 10% market share.

This investment is part of Hyundai's commitment to invest approximately US$ 52 million (Rs 4,000 crore) through 2028 to further its plans of launching six electric vehicles (EVs) in the country.

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India Report

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We believe the company will accelerate sales of car models ranging from small sedans and sport utility vehicles to electric cars and will continue addressing the global market from India.

We believe the company will accelerate sales of car models ranging from small sedans and sport utility vehicles to electric cars and will continue addressing the global market from India. Hyundai is likely to manufacture the Venue compact SUV at the Talegaon plant and may use it as a base for made-in-India vehicle exports. **PSR**

Russia Report

By Maxim Sakov, Market Consultant, Russia Operations

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

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