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Top Stories

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Data Point: *Light Towers*

19,300

By Carol Turner, Senior Analyst, Global Operations

This is the estimate, by Power Systems Research, of the number of Light Towers that will be produced in 2018 in the United States and Canada. In 2017, the production was 19,640.

This information comes from two proprietary databases maintained by Power Systems Research: **EnginLink™** and **OE Link™**.

Market Share: With 30% of total units produced, Generac Mobile Products (Magnum) leads in production of Light Plants in North America. In second position with 20% is Allmand Bros; third, Terex-Rock Hill with 16%.

Engines used by OEMs: Frontier Power: 100%; Kubota (10); **Allmand Bros:** 6% MHI (230), 9% Isuzu (364), 15% Perkins (591), 24% Caterpillar (931) and 46% Kubota (1799) diesel; **Bossltg:** 9.5% Kohler (28) gas; 1% Kohler (3) diesel, 37.5% Isuzu (110) and 52% Kubota (153) diesel; **Doosan Infracore:** 4% Isuzu (64) and 96% Kubota (1419) diesel; **Generac Mobile Products:** 4% Isuzu (256), 43% Kubota (2553) and 53% Mitsubishi (3123) diesel; **MDD Equipment:** 100% Kubota (31) diesel; **Mobilight:** 100% Kubota (3) diesel; **MQ Whiteman:** 5% Isuzu (54), 26% Kubota (273) and 69% Kohler (717) diesel; **Terex:** 5% Perkins (159), 7% Kohler (216), 20% Isuzu (614) and 68% Kubota (2079) diesel; **Wacker Neuson:** 6% Caterpillar (167), 17% Isuzu (472), 36.5% Kohler (1011) and 40.5% Kubota (1122) diesel; **Wanco:** 7.5% Kohler (83), 23% Pekins (250) and 69.5% Kubota (755) diesel, and **Winco:** -0.

Exports: Collectively, up to 35% of the production is exported worldwide.

Trends: From 2016-2017 production of Light Plants in NA increased nearly 14% Production is expected to drop 1.5% from 2017-2018. The gain is attributed to natural disasters of 2017 for instance hurricanes and tropical storms in addition to the growth in construction related activities. The decline is credited to lack of lighting needed for oil/gas processing (mining & oil/gas exploration that is usually a 24/7 operation) along with MQ Whiteman leaving the industry.

Rental accounts for fleet, road & general construction have somewhat stabilized resulting in the increase in 2017. Innovative new products have also spiked sales especially with the introduction of LED lighting options. Portable light tower rentals comprise of approximately 90% of the market. Production will continue to fluctuate over the next 3-5 years that will rise and fall with oil/mining related activities, however, expect moderate gain of up to 5%.

Notes: **MQ Whiteman** (MultiQuip) is leaving the light tower market; there will be no production after 2018; **MMD Equipment** is out of business. **PSR**

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Brazil/South America Report

By Fabio Ferraresi, PSR Director, Business Development, South America

Domestic Market Drives Brazil Production Increases

Fabio Ferraresi

Anfavea's actual sales and production numbers for the period January - November and projected numbers for December point to a 15% increase in Light Vehicles and a 49% increase in MHV domestic sales.

For the full year, Anfavea forecasts a 13.7% increase in Light Vehicle sales and 11.1% gain in production. That reflects disappointment with exports, driven by a drop in the Argentina market.

MHV full year numbers show sales growing from 64,000 to 86,000 units, a 35% increase. Production is forecast to climb from 104,000 to 120,000, a 15.7% increase. This, again, is reduced because of a soft Argentina market.

Source: *Anfavea* **Read The Article**

PSR Analysis: Anfavea has been announcing lower forecasts for FY 2018 in the second half of 2018 and PSR held strong numbers in MHV, based on monthly sales and production figures and trends. Argentina is the most important market for Brazil and its crisis negatively impacted production. **PSR**

China Report

By Qin Fen, 秦奋 PSR Business Development Manager-China. 业务拓展经理

Ceres Power and Weichai Finalize JV

Qin Fen

Ceres Power, a world-leading, low cost solid oxide fuel cell company, and Weichai Power, one of the leading automobile and equipment manufacturing companies in China, have completed their long-term strategic collaboration announced last May. This includes a Joint Venture agreement with the commitment to create a fuel cell manufacturing JV in China, a license agreement to transfer key technology to the JV and a new £9 million joint development agreement. It also triggers a further £28m equity injection into Ceres Power.

Sources: *Ceres Power* **Read The Article** *Business Wire* **Read The Article**

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China Report

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If everything goes well, in two or three years, we will probably see hydrogen fuel cell (FC) buses running in major cities of China.

PSR Analysis: As Ceres Power CEO Phil Caldwell pointed out, the partnership with a strong company like Weichai will help Ceres lower costs and benefit from economies of scale.

If everything goes well, in two or three years, we will probably see hydrogen fuel cell (FC) buses running in major cities of China. Today, there are FC buses trial-running in cities like Beijing and Foshan, and some FC trucks trial-running in Shanghai. An interesting development question is: Will FC buses and trucks take market share away from battery buses and trucks the way the battery industry takes market share away from the IC engine industry? Or will FC and battery work together to take the remaining share from IC engines in the bus market? **PSR**

Ceres Power和潍柴动力敲定战略协作及合资协议

2018年12月5日 16:31 – 伦敦--(美国商业资讯)--全球领先的低成本固体氧化物燃料电池公司Ceres Power (AIM: CWR, "Ceres")及中国领先的汽车设备制造公司之一潍柴动力 ("潍柴") 欣然宣布敲定2018年5月首次宣布的长期战略协作。其中包括承诺在中国建立一家燃料电池制造合资企业的合资协议；向合资企业转让关键技术的许可协议；以及一份价值900万英镑的新联合开发协议。它还促使潍柴另外向Ceres Power提供2800万英镑股权注资。

新闻来源： 锡里斯官方网站 – 2018年12月4日 **阅读原文链接** 美国商业资讯 – 2018年12月5日 **阅读原文链接**

PSR分析： 正如Ceres Power首席执行官Phil Caldwell所指出的，与潍柴这样实力强劲的公司合作，可以帮助锡里斯产品降低成本，并且得益于规模经济。

如果一切进展顺利，2到3年内，我们或许会看到氢燃料客车行驶在中国的主要城市之内。目前北京，佛山等城市已有氢燃料公交车试运行，上海也有氢燃料卡车试运行。那么接下来的发展问题就有意思了：氢燃料客车/卡车，是否会像电池行业把市场份额从内燃机行业夺走那样，也同样把市场份额从电池行业夺走？还是说这两个行业，氢燃料加电池行业，共同努力，把内燃机行业在客车市场的剩余份额，一起夺走呢？ **佩赛迩**

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Europe Report

By Emiliano Marzoli, PSR Business Development Manager-Europe

European Demand for Electric Aerial Lifts Grows

Emiliano Marzoli

Read The Article

PSR Analysis: Awareness of global warming is strong in the old continent, and it is not surprising that many OEMs in Europe are developing electric machinery.

Haulotte, the European leader in Aerial lift applications, recently has introduced a new product line, the Pulseo HA20 Series. The two new articulated boom lifts offer quiet operations, allowing use during both night and day, and near low-noise areas. Since they have zero tailpipe emissions (well, for a start, they do not have a tailpipe), they also can be used in low emissions zones, or in indoor areas.

Other features, like non-marking wheels, make the HA20 LE and the HA 20 PRO suitable for delicate floors. The machines are pushed by four independent wheel motors.

Demand for electric and hybrid aerial lifts is growing significantly in Europe. Production is up too, and according to our database **OE Link™** CAGR will be 15% for the next five years, and it will eventually slow down to 3% in the following five years. Total CACGR between 2018 and 2028 will be 10%.

Demanding environmental regulations, growing awareness of global warming, public pressure and stringent local limits at the town level are driving adoption of the new powertrains in this application. **PSR**

Far East/Southeast Asia Report

By Akihiro Komuro, PSR Research Analyst, Far East and Southeast Asia
小室明大　極東および東南アジア　PSRリサーチアナリスト

Akihiro Komuro

Far East: Japan

Honda Launches PCX Electric Scooter Project

Honda has started marketing the PCX Electric scooter in Japan alongside the battery swapping system. The company is planning for an annual production of 250 of the electric scooters, which then will be leased. The initial goal by the

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Far East/Southeast Asia Report

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Compared to the PCX with a combustion motor, the electric version has an extended wheelbase, in order to provide additional space for batteries. The scooters will be fitted with two exchangeable lithium-ion batteries.

company is to gather data regarding usability and the behavior of the drivers of the PCX Electric, Honda said in a statement.

Compared to the PCX with a combustion motor, the electric version has an extended wheelbase, in order to provide additional space for batteries. The scooters will be fitted with two exchangeable lithium-ion batteries, each with a 1.03 kWh capacity. At a constant speed of 60 kph, the PCX Electric has a 41 km range, according to the manufacturer.

The maximum motor capacity is 4.2 kW, according to Honda, with a continuous performance of .98 kW. In charging time, there is a difference between whether the batteries are charged externally, or by plugging in to a wall socket. Extracted from the vehicle, the batteries take four hours for a full charge. If they remain inside the electric scooter and are charged via cable, the process takes six hours.

Source: *electrive.com, 30* **Read The Article**

PSR Analysis: The EV scooter with its battery swapping system is basically the same idea used by Gogoro and IONEX of KYMCO in Taiwan. However, Honda did not mention the use of battery charging stations in its announcement. It plans to collect information on product usability and user's behavior.

Honda is planning the services on a trial basis in Indonesia and the Philippines, and other Southeast Asian countries where increasing demand is expected.

At the same time, Yamaha Motors is collaborating with Gogoro to develop and sell EV scooters using Gogoro's charging stations in Taiwan.

Presently, the penetration rate of EV scooters in Japan is less than 0.1%, much lower than the estimated 10% in Taiwan and 80% in China. There is almost no product lineup of EV scooters in Japan, and Japanese OEMs are trying to catch up to overseas manufacturers in terms of penetration and service offerings.

Given this situation, it is uncertain how Japanese manufacturers, such as Honda and Yamaha, will grow the EV scooter business. The growth of EV will greatly influence the power picture of the global motorcycle market where Japanese OEMs remain competitive. **PSR**

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極東 > 日本:

ホンダ「PCX」電動二輪でシェアリング、2019年から

ホンダは原付き2種の電動スクーター「PCXエレクトリック」を30日に発売した。着脱式のバッテリーを採用し、場所を選ばず簡単に充電できるようにしたのが特徴だ。まず250台を生産して企業や官公庁を中心にリース販売し、使い勝手の情報を収集。2019年春ごろから首都圏でのシェアリングサービスや観光地でのレンタルを始める計画だ。ホンダの125ccスクーター「PCX」を電動化した。着脱式のバッテリーはシート下に2つ搭載し、1回の充電で約41キロメートル走行できる。走行時の音はほとんどなく、最高速度は時速60キロメートル強。バッテリーの充電方法は2種類あり、車体につながる電源プラグで直接充電する方法では約6時間かかるが、バッテリーを車体から取り出して専用充電器に接続する場合は約4時間でフル充電できる。価格は70万円強を予定している。ベースモデルとなるガソリン車の「PCX」は販売価格が税抜き31万7000円で、今回発売する電動車は2倍以上の価格設定だ。(中略) 今回はホンダのホームページからリース会社を通じて販売する。東南アジアでも企業などを対象に展開する予定という。(中略) ホンダはPCXエレクトリックの実証実験をインドネシアやフィリピンで予定している。インドネシアでは、バッテリーシェアリングを実証し、残量が少なくなった着脱式のバッテリーを充電ステーションで新しいバッテリーと取り換えて再び走行できるようにする

Source: 日経新聞, 2018年11月29日

PSR 分析: 着脱式バッテリーシステムを採用したEVスクーターは台湾のGogoroやKYMCOのIONEXと基本的には同じアイディアである。だがホンダは、バッテリーをユーザー間で共有する充電ステーションシステムは今回の発表で言及しなかった。ユーザビリティとユーザーの行動データを収集する予定だ。

今後ホンダは需要増が期待できるインドネシアやフィリピンでの試験的なサービスに予定している。

一方、ヤマハは台湾のGogoroと協業して、台湾でGogoroの充電ステーションを利用できるスクーターを開発販売する。

現時点で日本のＥＶスクーターの販売率は0.1%以下だ。それは約10%の台湾や80%の中国と比べると低い。日本ではEVスクーターの製品ラインアップもほとんどなく、普及率やサービス開発の面で日本メーカーは海外メーカーに追い付こうとしている。

このような状況から、ホンダ、ヤマハをはじめとする日本のメーカーがどのようにEVスクーター事業を進めていくかは不透明だ。現在日本が競争力を維持している世界の二輪車市場の勢力図に大きく影響を与える。**PSR**

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India Report

By Jinal Shah, Regional Director, South Asia Operations

Auto Industry Posts Record Year

Jinal Shah

The Indian automotive industry has had another record year for most of its segments. The government, through its policies and regulations, has two objectives: 1) facilitate long-term growth in the industry and 2) reduce emissions and oil dependence.

Considering these goals, here are important growth drivers we saw in 2018 and several challenges we see going forward.

Two and Three Wheelers, Quadricycles and Electrification Lead Trends

Two wheelers are an integral part of life in India, and the most noticeable trend shows use moving from commuting to more of a lifestyle/recreational activity.

Going forward, the increasing cost of fuel and commodities, climbing interest rates, and rising regulatory costs (recent hikes in insurance) are boosting ownership costs, and that may dampen customer enthusiasm.

Additionally, further increases in compliance costs based on safety norms (mandatory anti-lock braking systems for all models with engine capacity above 125 will be required after April 1, 2019) as well as costs related to compliance with BS VI emission norms could reduce demand.

At the same time, exports are showing healthy growth. Most OEMs in 2018 are running at full capacity and have expanded production to support future domestic and foreign demand.

Foreign demand for Indian three-wheelers comes from regions such as Southeast Asia, Africa and Latin American as these economies continue to stabilize.

With the government's focus on making last mile connectivity safe, Bajaj is the first to introduce a quadricycle, a vehicle about the size of a three-wheeler but with four-wheels and a fully covered top like a car. These quadricycles may signal the beginning of a new era in public transportation since three-wheelers continue to be highly unsafe for commuting. With the government permitting quadricycle use for commercial and personal purpose, it is likely that other OEMs may launch similar products soon.

The customer awareness and acceptability are evolving for electric vehicles and the timing of electrifying these segments depends on ecosystem development.

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Commercial Vehicles: The commercial vehicle (CV) industry fired on all cylinders for most of the year before moderating in Q42018. Growth has been led by infrastructure spend by the government, an increased level of manufacturing activity, stricter implementation of overloading norms in states like Uttar-Pradesh, Rajasthan, and Madhya Pradesh, continuing demand for last-mile connectivity, and rural development.

Passenger Cars: India is expected to emerge as the world's third-largest passenger-vehicle market by 2021. It took India about seven years to increase annual production to 4 million vehicles from 3 million. However, it's expected to hit the next milestone of 5 million in less than five years. Achieving that mark depends on continuing today's rapid economic development, (India has a projected annual GDP growth rate of 7% through 2020), ongoing urbanization, a burgeoning consuming class, and supportive regulations and policies.

The car of the future will be electrified, shared, connected and yearly updated. We see a shift in fuel mix going forward from diesel to petrol specifically for engines smaller than 2.0L. The car of the future will be used and shared "on demand". **PSR**

Russia Report

By Maxim Sakov, Market Consultant, Russia

Maxim Sakov

Tests of Driverless Vehicles Begun

Tests of driverless vehicles began on public roads in Moscow and Tatarstan Dec. 1, 2018. More than 100 vehicles are participating; each vehicle is attended by a driver to handle emergency situations.

The program is designed to evaluate the technological regulations and the legislation base. The experiment is expected to lead to improvements in Russian traffic regulations regarding driverless vehicles. Russia is one of the few countries which has the technologies for the development of driverless vehicles – computer intellect, navigation, LIDAR, etc.

Read The Article

PSR Analysis: Like the USA and some other counties, Russia has started tests on public roads. However, there is one key difference – with the development of driverless vehicles, Russia is focused on public transportation, not on individual vehicles.

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Russia Report

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Syria Considers Purchase of Dozers from Chelyabinsk

The Syrian Ministry of public works and construction is considering the purchase of road construction machinery produced by the Chelyabinsk tractor plant (ChTZ).

Under consideration by Loay Barakat is HHP machinery – wheel loaders PK65 and PK70, dozers DET-400. Loay Barakat is the second largest company in Syrian construction business, and it builds half of all the roads in that country.

Read The Article

PSR Analysis: As the Syrian government restores the country's infrastructure, it is creating a huge demand for construction machinery. If the deal now being negotiated is completed, ChTZ will significantly increase its production. **PSR**

North America Report

By Tyler Wiegert, Project Manager and Research Analyst
Joe Zirnhelt, COO and chief strategist contributed to this report

Tyler Wiegert

Power Gen International Show Review

ORLANDO, FL--The annual Power Gen International show was held at the Orange County Convention Center Dec. 4-6, 2018. Analysts from Power Systems Research were in attendance and visited many booths among maintained by the roughly 900 exhibitors.

This year, the show seemed to have more of a "grassroots" personality than in previous years. The Power Gen International was under new management this year, and it featured "Knowledge Hubs," where visitors and delegates could congregate to discuss and learn about specific topics, such as Emerging Industry Trends & Technologies, Decarbonization & Decentralization, Energy Storage/Microgrid and The Future of Baseload.

The team managing the show made a noticeable effort to increase the networking value of the conference, and we certainly could feel the time constraint in trying to take advantage of the opportunities presented to us during the relatively short time-window of the show.

While many of the giants of the industry had delegates present, some did not host their own booths this year. However, there were a larger number of booths dedicated to aftermarket support including service and maintenance, and parts and components. There were a number of smaller engine suppliers as well.

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North America Report

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Several suppliers who primarily serve markets outside North America and were taking advantage of the opportunity to build brand awareness in North America. AKSA Power Generation was the most notable example of this marketing effort; their sponsorship had their name printed on every entry pass.

FPT Industrial, which has historically sold its engines to other suppliers in North America before being rebranded and installed into equipment, also took advantage of the opportunity to increase its visibility. FPT accompanied its recent entry into direct-to-market sales with a large and well-staffed display.

Even if the makeup of exhibitors is changing, there is no doubt that Power Gen remains a powerful marketing platform.

There were two notable developments in engine production and technology at the show. The first was the continuing growth of natural gas. We talked with Power Solutions International, which has roots in the conversion of GM Powertrain to natural gas but is now fully engaged as a manufacturer-of-record for many of the gas engines used in standby and prime power gen applications in North America.

Another example in the gaseous engine space was Origin Engines, a much younger company, which manufactures engine packages ranging from 4.3-10.3L and 40kWe-200kWe. An interesting product example was a generator-set on display from eNGines-LPG, LLC, powered by a Honda engine converted from gasoline to gaseous fuels and designed specifically for remote operation. The generator set was built for a niche market that requires long running hours at constant load in areas where it is costly and difficult to send maintenance personnel. The set even had the capability to shut itself down and replenish lubricant fluids automatically at certain maintenance intervals.

The second development was the re-imagining of ways to integrate engines and aftertreatment systems, or rather, how to de-integrate them.

For the last decade, engine suppliers have been faced with round after round of emissions regulations, each requiring a new internal engine design or additional aftertreatment technology. Up until now, the focus has been on meeting each new standard and optimizing the engine for each standard, resulting in some different engine configurations for each regulated market.

Now that we have reached a plateau in regulations, there is time to re-evaluate how suppliers are meeting the demand for engines in different regions with different regulations. Not surprisingly, many are finding that having a differently-configured engine for each emissions level is not the most efficient way to produce for multiple markets. Many suppliers were eager to demonstrate, or at least discuss, the ways in which they planned to optimize a base engine package, which could then have aftertreatment systems attached to it to meet varying market requirements.

Overall, the sense at the show was that business is positive, and there is a collective feeling of relief that business will be about more than meeting the newest regulation for at least a few years.

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North America Report

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Attendance at the show certainly reflected that positive atmosphere, with many exhibitors telling us they were overwhelmed and happily exhausted after the first day. We look forward to attending Power Gen International in New Orleans in 2019 to see how suppliers take advantage of this new stability, and hopefully to hearing the same sense of market optimism. **PSR**