

## **CANGO Auto View: Behind the takeoff of NEVs: Who will win the battle of power battery technology?**

SHANGHAI, June 18, 2021 /PRNewswire/ -- With the evolving landscape of the global automotive industry, Cango Inc. (NYSE: CANG) ("Cango" or the "Company") is issuing a bi-monthly industry insight called "CANGO Auto View" to bring readers, drivers and passengers up to speed with what's on offer in the automobile market, what trends are emerging, and what holes need to be plugged.

Below is an article from the Company's 3rd edition for February 2021.

Back in 1876, Nicolaus August Otto, a German, made a four-stroke gas engine with his friend Eugen Langen. The thermal efficiency of this engine reached 6%, four times that of the gas engine made by Lenoir around the same time. And so, the internal combustion engine came into being, ushering in a new era for passenger vehicles, heavy trucks, ships, aircraft and many other means of human mobility. Petroleum energy, as a result, became increasingly critical.

On the other hand, it has been more than one century since the invention and use of Electric Vehicles (EVs). In as early as 1881, French engineer Gustave Trouvé built a tricycle powered by lead-acid batteries. But because of backward technology, batteries were not as economical as internal combustion engines and were therefore not used on a large scale.

Fast forward to 2020, the advancement of new energy technology prompted auto companies worldwide to begin making plans for EVs, resulting in a series of pure EV launches. European passenger vehicle companies led by Volkswagen plan to invest hundreds of billions of euros in the electrification field and introduce hundreds of car models. Volkswagen has reportedly rolled out mass production of models based on its pure electric platform MEB, and the ID.3 has been crowned Europe's leading pure EV offering.

Meanwhile in China, Tesla, Nio, Li Auto, WM Motor and other emerging carmakers have been making a name for themselves, and traditional auto companies have been launching one new energy brand after another.

In 2018, BAIC BJEV set up a joint venture with Magna, and the brand ARCFOX found its home in Zhenjiang; DFMC incubated Voyah; SAIC, Alibaba and Shanghai Pudong New Area invested together and set up IMMotors; and three years after its establishment, GAC AIAN officially started independent operations. Multiple parties have taken the stage to jointly usher in the era of emerging carmakers.

Available data indicates the domestic NEV market has maintained steady growth. As of November 2020, cumulative sales of NEVs in China reached 1.109 million vehicles. In 2019, 1.242 million NEVs were produced in China, which was a decrease of 2.25% over the 1.27 million of 2018, but 58.37% jump from 517,000 in 2016. It is worth noting that only 79,000 NEVs were produced in China in 2014.

In terms of industrial chain structure, NEVs are similar to traditional gas-powered vehicles in that their industrial chain involves multiple industries and a relatively complex chain of players. The industrial chain of New Energy Vehicles (NEVs), however, is structurally different from that of traditional vehicles, because the biggest difference between these two types of vehicles is that engines in traditional vehicles have been replaced by motors, batteries and electronic control parts in NEVs. In other words, on the base of the traditional industrial chain, the battery industry (including upstream resource development), motors and electronic control systems have been added to the industrial chain of NEVs.

### **Battery safety remains an issue**

NEVs are experiencing a gradual, but steady growth all over the world, and China's power battery industry has entered a phase of rapid development. In 2019, the scale of China's power battery market exceeded 70 billion yuan and power battery output amounted to 71GWh. Behind the rapid growth, however, the future trend of new energy battery technology and current battery safety have triggered heated discussions across society.

Over the last three years, China has seen spontaneous combustion of NEVs from time to time. In 2020 alone, there were more than 20 such accidents, involving multiple domestic and joint venture brands.

The main reason for EV fires is spontaneous combustion caused by thermal runaway, which happens following external impact on batteries or improper control of the batteries. For example, spring and summer are high-incidence seasons for electric vehicle fires, mainly because battery performance changes as a result of long periods of high temperature, rain and other environmental factors. In addition, the use of high-energy-density batteries, battery overcharging and physical collision will lead to changes of the battery internal structure which, in turn, will lead to spontaneous combustion.

Tesla founder Elon Musk insists, however, that the odds of spontaneous combustion are lower for most EVs than for gas-powered vehicles. And he is right. According to the Battelle Memorial Institute in the US and multiple other institutes, from a technical point of view, EVs indeed have a lower risk of spontaneous combustion than traditional gas-powered vehicles.

One fact worth noting, however, is, the car parc of EVs is relatively low and being in initial stages of industrial development with not very high consumer acceptance yet, safety issues need to be monitored even more closely.

### **About Cango Inc.**

Cango Inc. (NYSE: CANG) is a leading automotive transaction service platform in China connecting dealers, financial institutions, car buyers, and other industry participants. Founded in 2010 by a group of pioneers in China's automotive finance industry, the Company is headquartered in Shanghai and engages car buyers through a nationwide dealer network. The Company's services primarily consist of automotive financing facilitation, car trading transactions, and after-market services facilitation. By utilizing its competitive advantages in technology, data insights, and cloud-based infrastructure, Cango is able to connect its platform participants while bringing them a premium user experience. Cango's platform model puts it in a unique position to add value for its platform participants and business partners as the automotive and mobility markets in China continue to grow and evolve. For more information, please visit: [www.cangoonline.com](http://www.cangoonline.com).

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