

## SMART EV



Xpeng Motors supercharging station in Guangzhou's Tianhe District, where NEVs from other brands have enjoyed charging service



Xpeng Motors supercharging station outside Bird's Nest in Beijing

vehicles under other brands during its trial operation phase.

"The supercharging network is an indispensable link in Xpeng Motors' service operation system," said Xiao Bin, senior vice president of Xpeng Motors in charge

of supercharging network. "It will provide a series of services including smart search, dedicated parking, charging reservation and high-speed WiFi to make charging easier, faster and more fun."

Xpeng Motors so far has inked

agreements with about a dozen first- and second-tier cities in China to build about 100 supercharging stations, and expects to put close to 200 supercharging stations into service by the end of 2019. The longer term plan is to further expand that total to 1,000

across China.

By the end of 2018, Xpeng Motors' vehicles could also be charged at nearly 10,000 third-party charging poles and more will be accessible as it further expands its charging network.

# Electric Aion S

— by Mark Andrews

When GAC first showed the Aion S at the 2018 Guangzhou Auto Show and billed it as a Tesla 3 killer it created more questions than answers. On March 1, the Aion S went on pre-sale with both prices and the interior revealed. Yet while it provided some answers it almost created as many new questions.

Compared to fellow state-owned OEMs BAIC and SAIC there is no denying that GAC is behind when it comes to new energy vehicles (NEVs) but it has very publicly linked its future to them. In 2017 it created GAC New Energy (GAC NE) with a mission to become a world class electric car maker over the next three to five years.

Central to those plans are the ¥2.13 billion (\$310 million) Smart Eco Plant situated in an EV Industrial Park in the Panyu District of Guangzhou, completed in December 2018. This is where the Aion S will be produced. The highly automated line is full of robots but so far the body shop has only a few cars going through it as production has yet to ramp up – deliveries are set to start in May.

Although capacity of the factory is 200,000 units the sales target of GAC NE is 20,000 EVs in 2020. GAC NE claims to

be China's fastest growing electric car manufacturer and recorded a 400 percent year-on-year increase in 2018, selling 20,045 NEVs. However that is from a low base; to give some perspective BMW sold over 23,000 NEVs in China last year and Chinese smart EV startup NIO sold more than 11,000 units in six months.

For GAC NE the Aion S is the first model in its next generation of NEVs. Until now all previous vehicles were based on ICE models. The company's strategic plan calls for the launch of seven new models by 2023.

Underpinning the Aion S, and likely many of the forthcoming models, is GAC's second generation electric platform. Much of the basis for the Tesla 3 killer claims is the car's reported range of 510 km (317 miles) under the NEDC cycle. Part of this is from using CATL's latest generation ternary lithium-ion battery. The NCM 811 cells have a power density of 170 Wh/kg. Also incorporated is a three-in-one e-axle system developed for the Aion S in conjunction with Japanese supplier Nidec. This combines the electric motor, gearbox and inverter into one weight saving system topping the scales at 87 kg. While performance for the engine has been announced, 135 kW and maximum torque



300 Nm, the capacity of the battery has not. Claimed power consumption is 12.9 kW/100 km leading to an estimate that it must be around 70 kW.

Further clouding the matter is that now it seems there are actually two different ranged versions of the car. Firstly there is the 630 km version (driven at a constant 60 km/h), which up until now was all we had heard of, with prices starting from ¥160,000 and available in three trim levels. Plus now we know there is a 530 km version (driven at a constant 60 km/h) which is only available in the one trim (loosely translated as Charming) priced after subsidies at ¥140,000. Nothing has been mentioned as to why they have different ranges; is the lower ranged version software limited or does it have a smaller capacity battery, or could the battery use older technology?

Aiding the range is the car's low drag coefficient of 0.245 Cd which is not quite as slippery as the Model 3. So far, though, the Aion S's weight is completely unknown although its wheelbase is considerably shorter (125 mm) than that of the Model 3.

From the beginning of March the car is open to ordering via an app, although deliveries won't commence until May. One of the things that sets the car apart from much of the NEV competition in China is the high degree of customizability. GAC NE claims there are 16,800 possible combinations. Purchasers go through a number of steps on the app. Firstly they

select from the four basic versions of the car (three for the 630 km range and one for the 530 km). Then choose a color; there are seven solid and two 2-tone options where the roof color is different. There are a further three options for interior colors along with three for wheels (one 17 inch and two 18 inch). In addition there are add-on packages of equipment and the ability to put signatures on the seats and windows. GAC has created a unicorn motif known as the 'unicorn family' where the horns denotes connectivity and the tails electricity and this character set can also appear on the seats.

GAC NE claims the Aion S to be the first Chinese vehicle to use solar power, although BYD did mount a solar panel on its F3 DM some years ago. The solar panel reduces the power required for charging and provides an energy efficient ventilation and air circulation system. This is also one of the options when purchasing.

For a car in pre-production form it appears to have good quality and given the impressive range performance GAC NE has very conservative sales targets. Obviously there are still some questions that remain to be answered but these will come within weeks. The segment though over the next year looks to become a source of hot competition with the Geely GE11 set for unveiling most likely at the Shanghai Auto Show and offering an even lower drag coefficient of 0.238 along with Chinese production of the Tesla Model 3 likely to begin by yearend.

