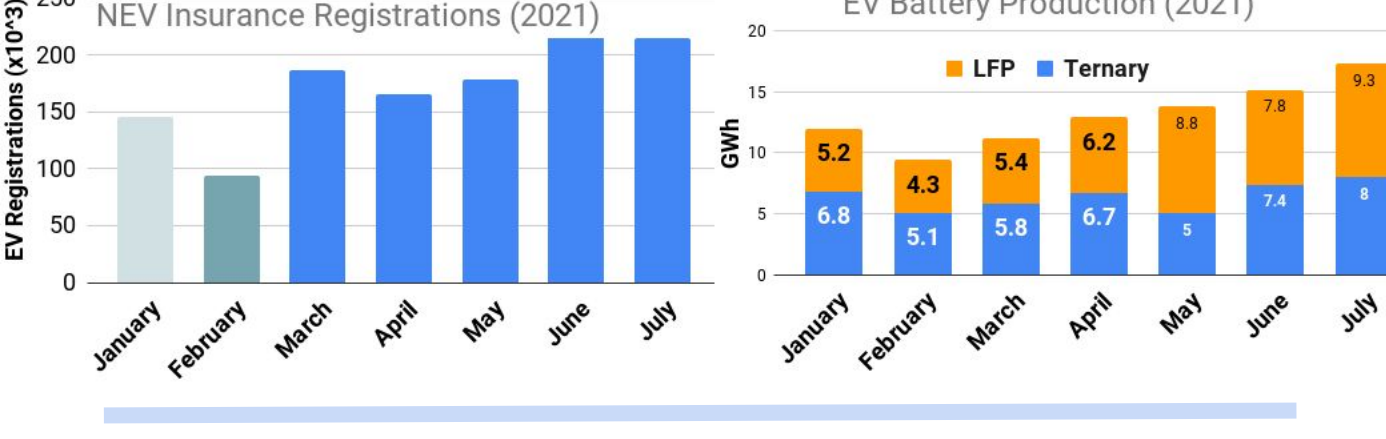


China EV, Battery and Energy Storage headlines August 2021



by the numbers Semi Annual 2021: China EV Batteries

- EV Production Jan-Jul- **1.5million**
- EV Battery Jan-Jul- **92.1 GWh**
- Spodumene Concentrate **↑ 110%**
- Lithium Carbonate (99%) spot price **↑ 70%**
- Lithium hydroxide (56.5%) spot price **↑ 91.8%**
- Cobalt Hydroxide spot price **↑ 30%**
- Nickel sulfate spot price **↑ 15%**
- CAM materials **475 kt- ↑ 169% (190kt NMC, 176 kt LFP)**
- Anode materials **333kt spot price ↑ 30%**
- Cobalt Hydroxide spot price **↑ 30%**
- Lithium Hexafluorophosphate spot price **↑ 264%**

Raw Materials & Battery Chemicals

Lithium battery raw materials Ave- August 31 spot prices

99.5% Li ₂ CO ₃	(115k RMB/ton)
56.5% LiOH.H ₂ O	(129k RMB/ton)
Spodumene 6% CIF China	(910 USD/ton)
Precursors (523,622,811)	(121,132,142.5k RMB/ton)
CAM (523,622,811)	(181,195.5,226k RMB/ton)
LiFePO ₄ (EV)	59k RMB/ton
LiFePO ₄ (ESS)	53k RMB/ton
Graphite (Natural/Synthetic)	55/70k RMB/ton
LiPF ₆	420k RMB/ton
PVDF- Battery Grade	290k RMB/ton
Vinylene Carbonate	350k RMB/ton



(Qinghai) Complete 20kt/yr Li₂CO₃ project, now enters trial production



(Yichun) Announce 100kt/yr Li₂CO₃ production project.



(Yibin) 2nd second phase LiOH 25 kt/yr to start by end of 2021



(Sichuan) Construction of 200k/yr anode materials plant



(Sichuan) Construction of 100k/yr anode precursors & products



EVE & SEMCORP announce 5.2 billion RMB (1.6 billion m²) battery separator JV



China Molybdenum announce construction of US\$2.51 billion copper-cobalt mixed mine project at their TFM site Congo (DRC)

(Qujing) one billion RMB investment in a 40kt/yr nano-lithium iron phosphate project goes into production.

18 Billion RMB investment in Lithium Iron Phosphate Production



Invest & Construction of 200kt LiFePO₄ production



Finish 60kt LiFePO₄ material production base in Sichuan in 2021.



Construction of 200kt LiFePO₄ project



Construction of 500kt LiFePO₄ project



Agree to supply LiFePO₄ to



华友控股

Cell Manufacturing

2021 China's announced battery production topped 1100GWh, enough to manufacture 22 million electric vehicles.



(Jingmen) 30 GWh Power Energy Storage Battery Project



(Changxing) Announce 12 GWh battery production site selection.



(Jiangxi) Construction of 15 GWh Novel Battery Plant (2023)



(Nanchang) Construction of 15 GWh Novel Battery Plant (2023)



(Tieshan) Construction of 5 GWh Battery Plant



(Hefei) Construct 50GWh EV & ESS Battery Plant



(Huzhou) Invest 5.6 billion RMB 15GWh EV & ESS Battery Plant



Raise 58.2 billion RMB to build additional 167 GWh capacity over 5 sites

1. (Fuding) 60GWh.
2. (Guangdong) 30GWh.
3. (Jiangsu) 30GWh.
4. (Cheliwan) 15GWh
5. (Hubei) 2GWh of lithium-ion batteries & 30GWh of ESS

Battery Technology



1st Cobalt Free Battery NMC

Great Wall Motor brand ORA released the first cobalt-free battery electric SUV supplied by SVOLT.

- Cobalt-free battery pack (82.5kWh)
- System energy density (170Wh/kg)
- Driving range (600+ km)



A480

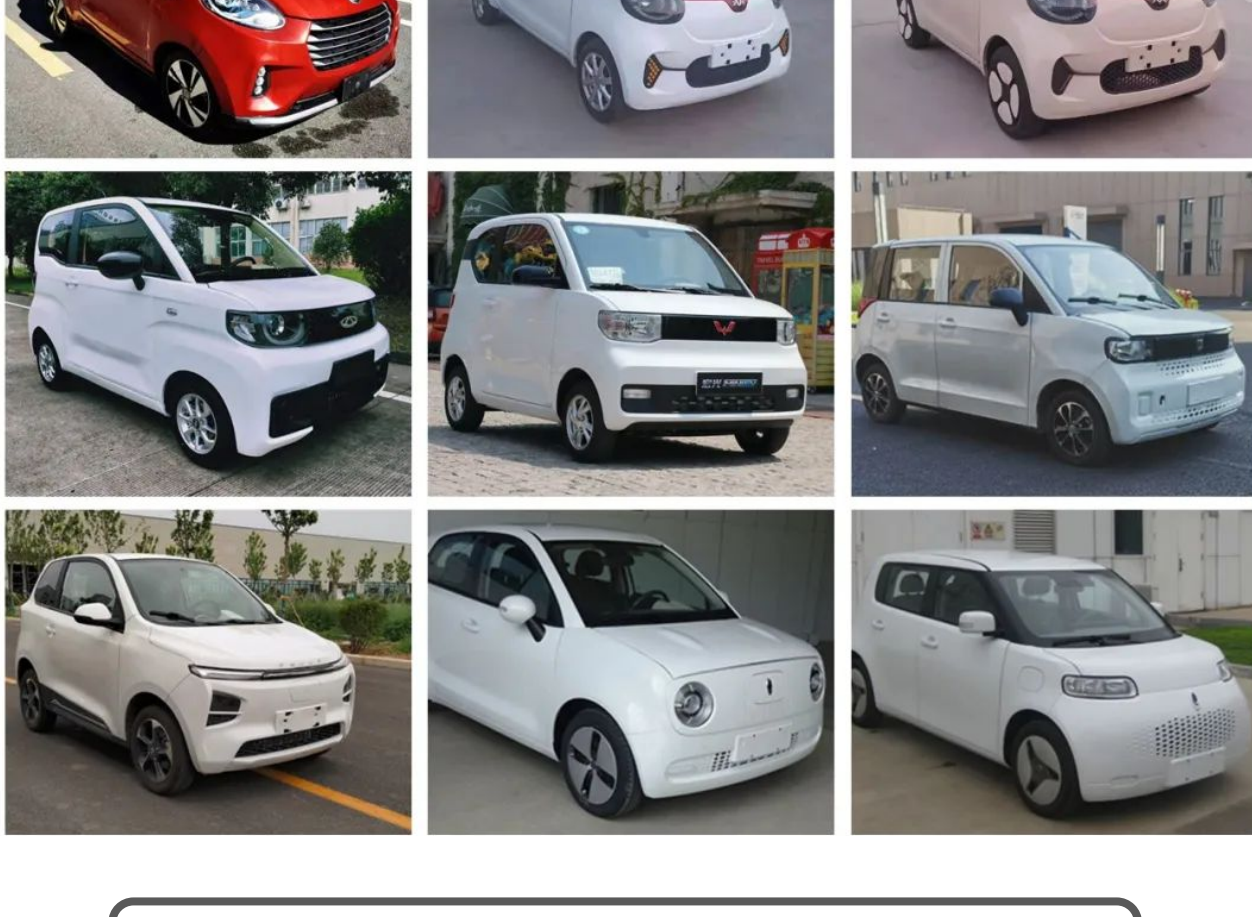
480kW



GAC Aion SuperCharger 200 km in 5 min & world's highest charging power 480 kW

Integrated novel battery technologies to open up supercharging.
A) high-porosity coated ceramic separator **B)** low-viscosity electrolyte
C) soft carbon/hard carbon/graphene coating technology

Electric Vehicle



Imitation is the sincerest form of flattery
2021 The MINI EV show

MIT released the "Announcement on Road Motor Vehicle Manufacturers and Products" (batch 347).
 A highlight of the list was the large number of MINI EV's in the vein of the popular Wuling Hongguang Mini EV