

EV, ESS & Battery Industry Survey 2022

Survey Introduction & Demographics

Dear Colleague,

Thank you for taking part in our EV, ESS & Battery Industry Survey 2022.

The intention of the survey is to act as an industry resource, by drawing together a range of perspectives from different points in the market, we hope to highlight key opportunities and challenges in the sector for the year ahead.

We are therefore very pleased that representatives from all points in the supply chain have participated in the survey, as well as from all the key geographies, as shown in the charts.

The results are expressed in terms of percentage of responses received, and are arranged in three sections:

- EV sales
- EV battery technology
- ESS market
- ESS battery technology

We hope that you have found taking part in the survey useful, and enjoyable.

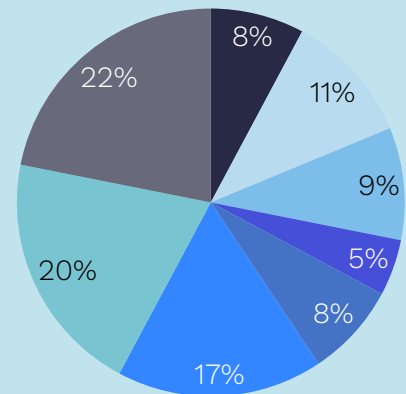
Please feel free to contact us with any questions or comments .

Kind Regards,

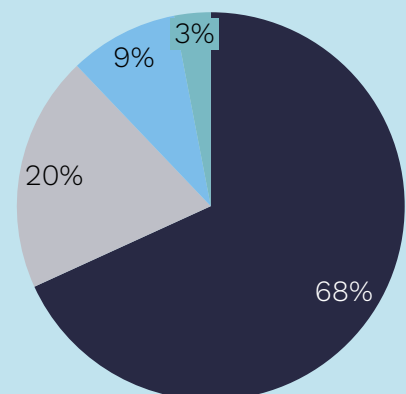


Adam Panayi
Managing Director, Rho Motion

Participant Industry



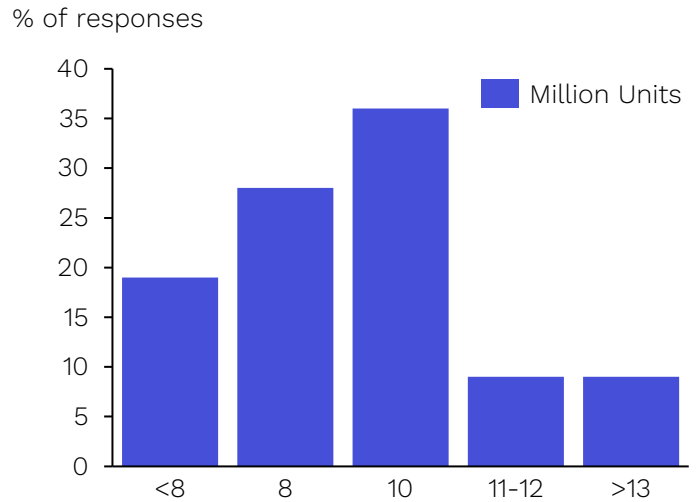
Participant Geography



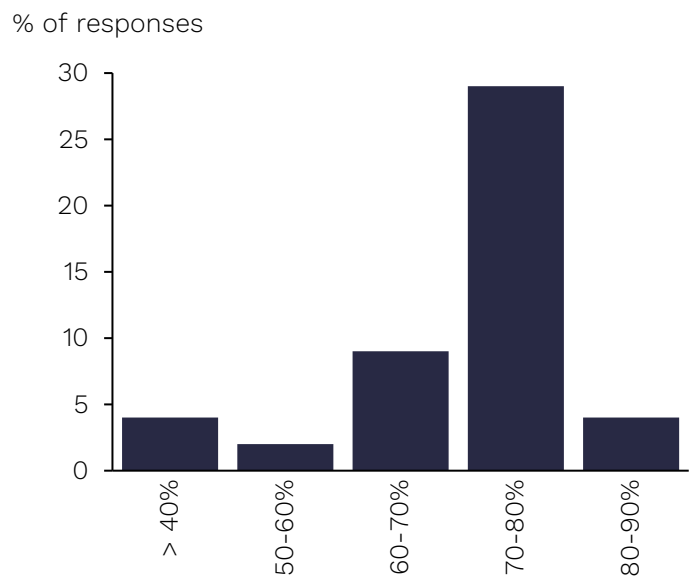
Section 1: EV Sales

- Last year's BEV & PHEV sales of roughly 6.6 million units were at the very top end of respondents expectations in our last survey, and in most cases much beyond them. This year the most frequent response was for sales in the region of 10 million units, which is broadly aligned with our view. As ever, the market is more likely to surprise to the upside rather than the downside.
- Over recent years, the emergence of Europe as a major market increased the share of PHEVs sold overall as the technology captures about half the market in the region. More recently the split of EV sales has been moving in move towards BEV as the European market itself starts to move in that direction too, which is reflected in responses in this year's survey.
- A strong message from the responses on the regional ranking of sales in favour of China reflects our own view that the pace of sales there is outstripping another other region.

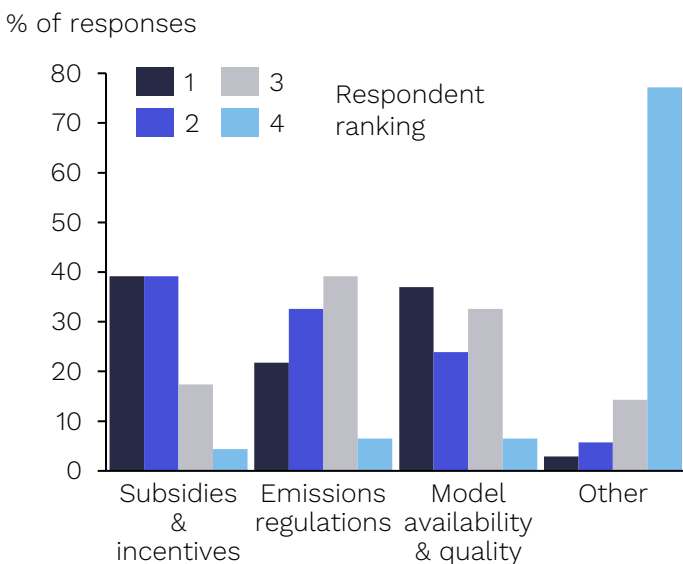
How many BEV & PHEVs do you expect to be sold in 2022?



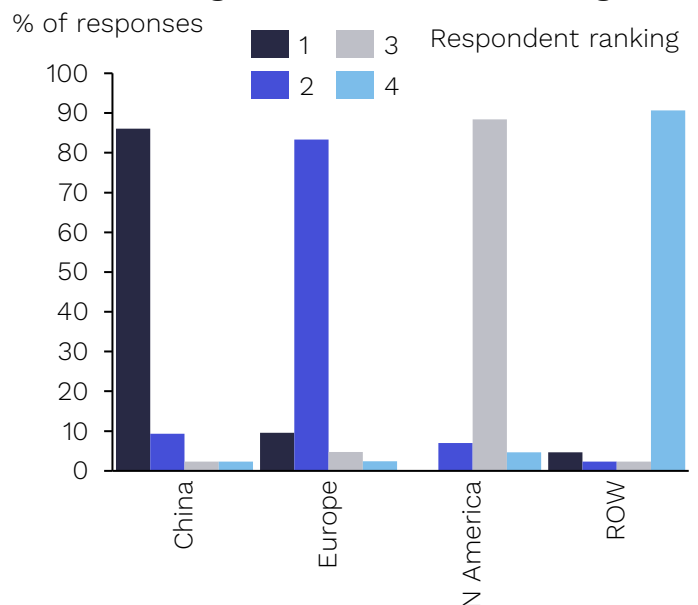
What percentage of these will be BEV?



Rank the drivers of EV sales this year



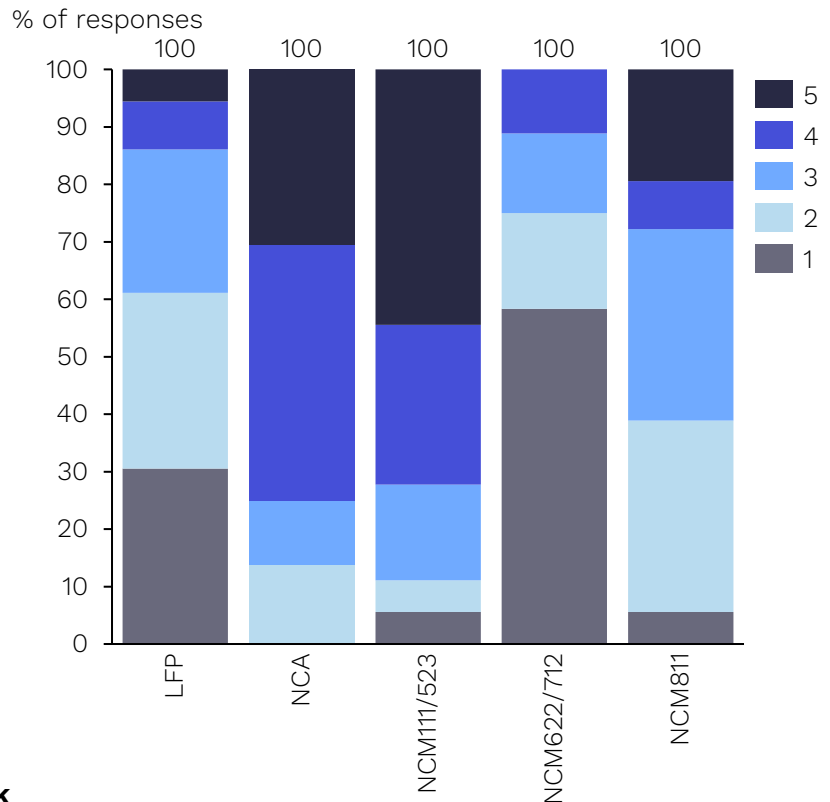
Which regional market will be largest?



Section 2: EV Battery Technology

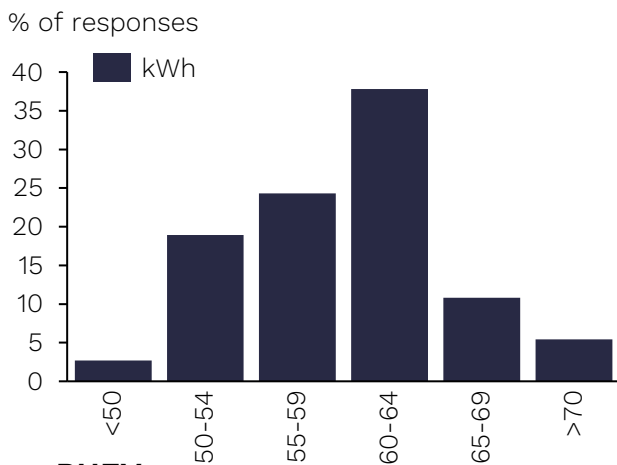
- In the charts on the right, the size of each stack reflects the share of responses for a given market share of each cathode or anode chemistry. You can see the majority opinion in terms of market share in virtually all cases is clear, with LFP and mid-nickel chemistries likely to dominate in 2022.
- For pack sizes the options at the middle of the range proved dominant in response share, reflecting the relatively slow pace at which pack sizes evolve, but with respondents expecting higher BEV pack sizes in the year ahead from the 53 kWh seen in 2021.

What are your expectations for cathode share in 2022?

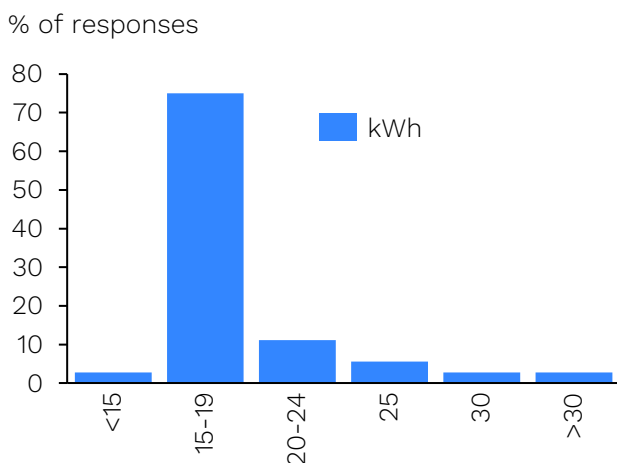


What are your expectations for pack sizes in 2022?

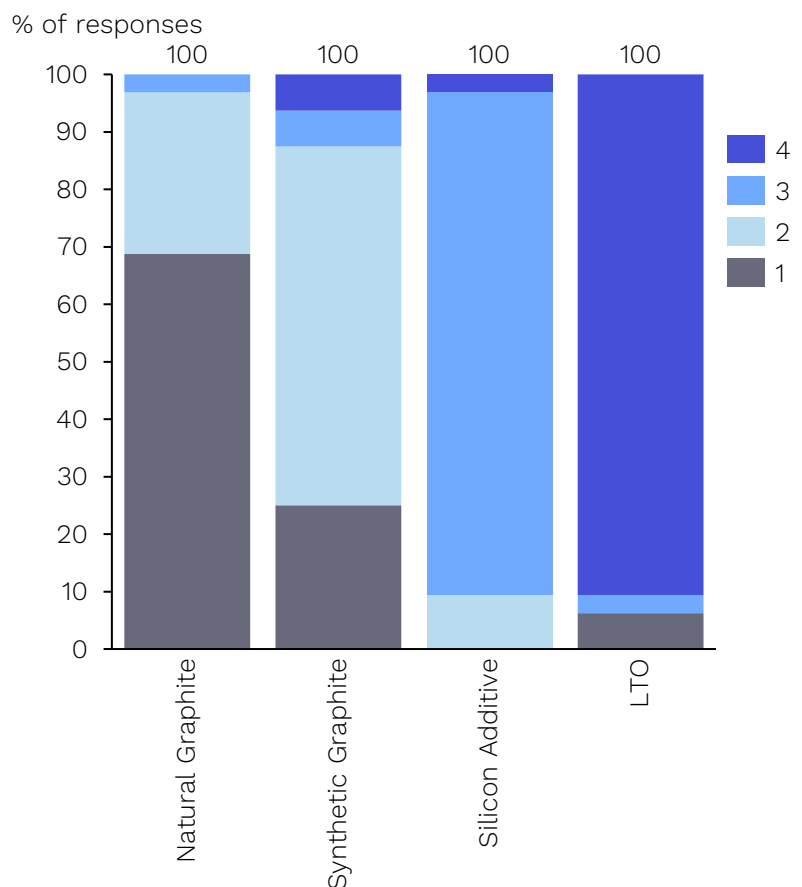
BEV



PHEV



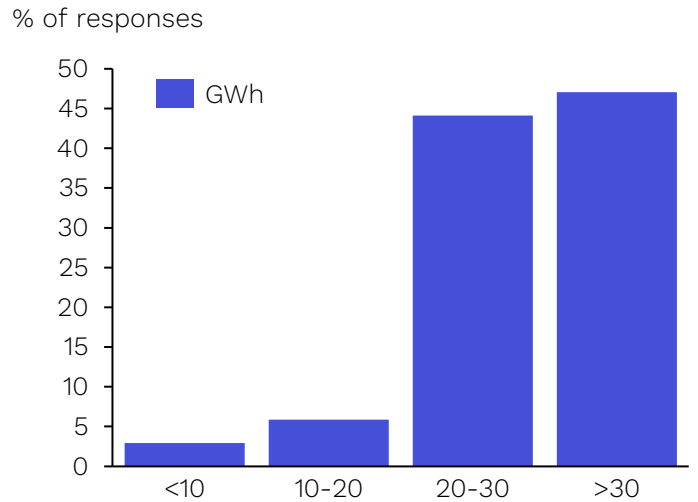
What are your expectations for anode share in 2022?



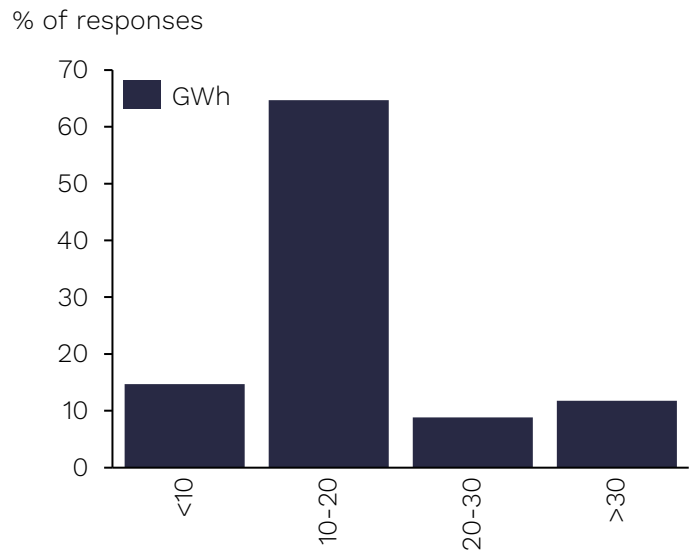
Section 3: ESS Market

- In 2021, over 26GWh of battery energy stationary storage was deployed, a y-o-y increase of over 160%. Grid storage accounted for 65% of batteries, with behind-the-meter accounting for the remaining 35%.
- For 2022, respondents expect a similar split of deployment between grid and BTM, with greater than 20 GWh, and great than 30 GWh the most common responses for the grid, and 10-20 GWh for BTM. These responses also indicate expectations for another significant year of growth, added together roughly 50 GWh of deployment in the coming year.
- Respondents expect that the USA, followed by China will be the largest markets, in line with last year, with Europe continuing to lag behind. In 2021 North America was the largest market followed by China, the two regions accounting for 75% of the global market. In Europe double taxation issues have made the use case for BESS uneconomic at present.

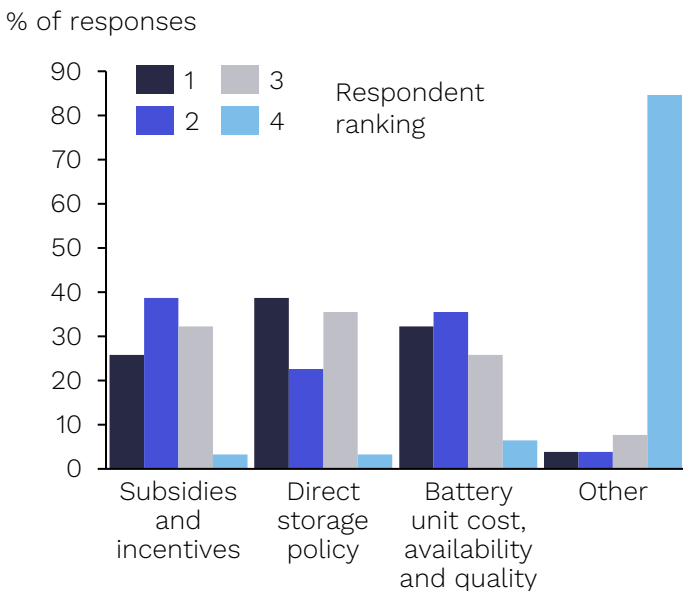
What do you expect total global BESS installations to be in 2022 for the Grid?



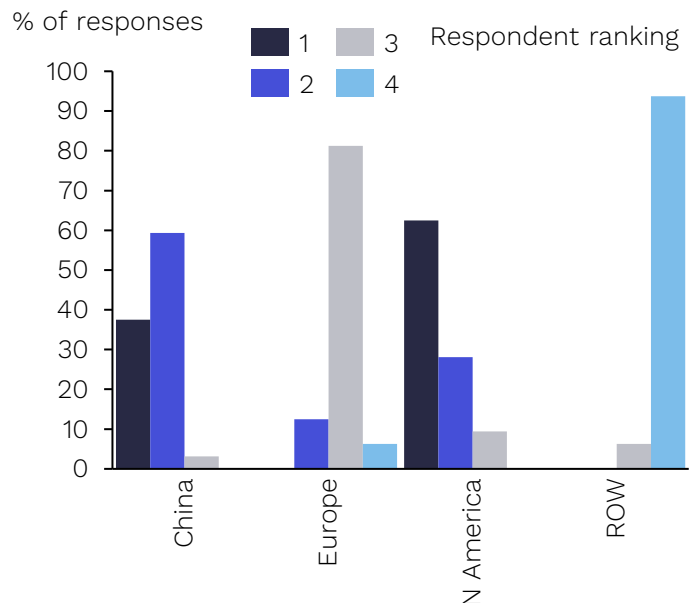
and Behind-the-meter?



Rank the drivers of EV sales this year



Which regional market will be largest?



Section 4: ESS Battery Technology

- In terms of battery technology deployed, respondents expect that lithium ion will continue to dominate the market with the vast majority of first choice rankings for the technology.
- For the share of lithium ion by cathode technology, a similarly emphatic response was seen for LFP, as the technology has come to dominate over the last year or so, as safety and life cycle concerns have come to the fore.

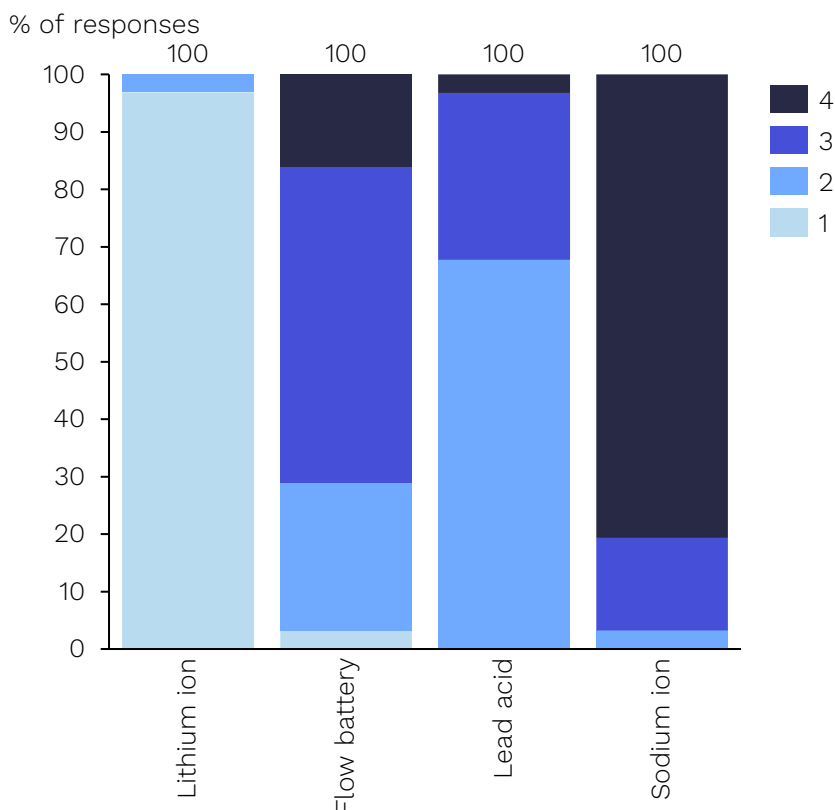
Open response comments:

“Increasing diversification away from li-ion expected in order to meet demand - especially in emerging markets e.g., India. Sodium ion becoming significant from 2025”

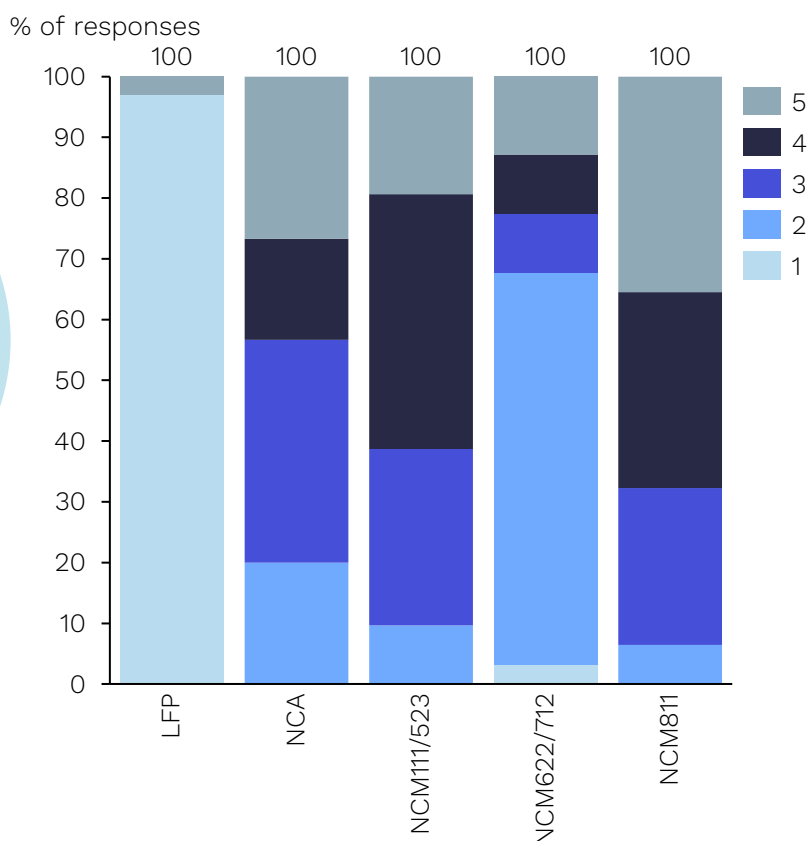
“Increasing price of raw materials and competition from flow batteries will increase LFP market share to keep prices down”

“BESS industry may suffer more from battery price increase because projects are generally more sensitive to price”

What are your expectations for battery technology share in 2022?

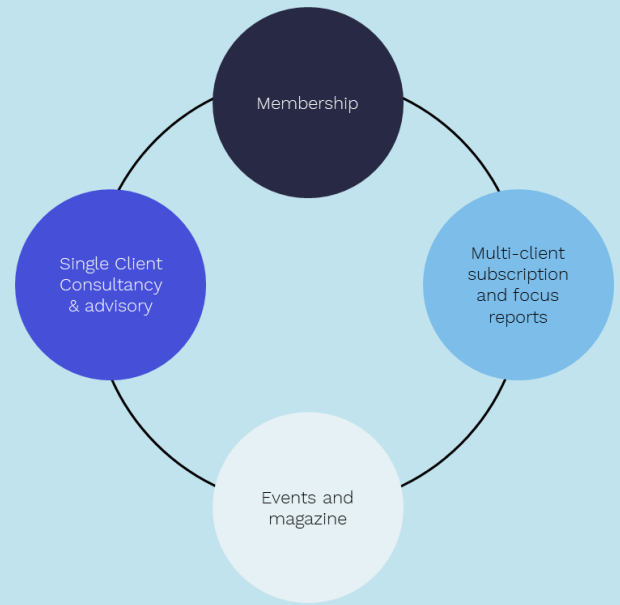


What are your expectations lithium ion cathode share in 2022?

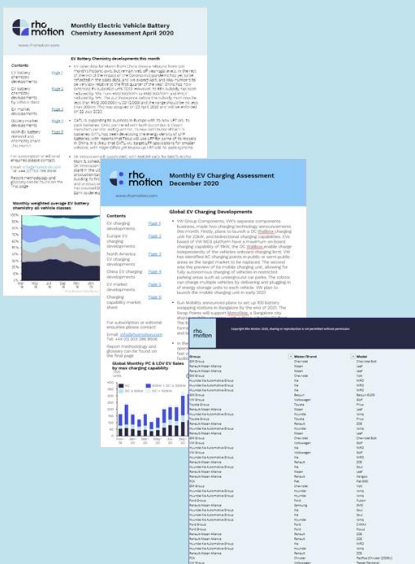


About Rho Motion

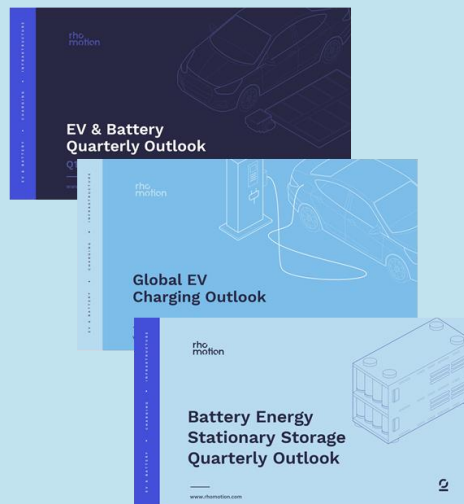
- Rho Motion offers the most comprehensive and well-informed forecasts and analysis for the energy transition. Our rigorous analysis interrogates each point in the Electric Vehicle & Battery supply chain.
- We consider the implications of government legislation and incentives, OEM and battery manufacturer strategy, in addition to raw material, technology and infrastructure costs, capital investment and consumer behaviour.
- Our core monthly and quarterly assessments and outlook provide ongoing analysis of the development of Electric Vehicle battery pack sizes, energy density, chemistry and costs, as well as the rate of growth of the Electric Vehicle & Battery market by vehicle class. We also track the roll-out of the charging network and associated infrastructure development linked to battery storage.
- Based in London, our team has expertise in vehicle markets and economics, the battery supply chain and its raw materials, as well as the impact of government legislation on OEM technology choices.



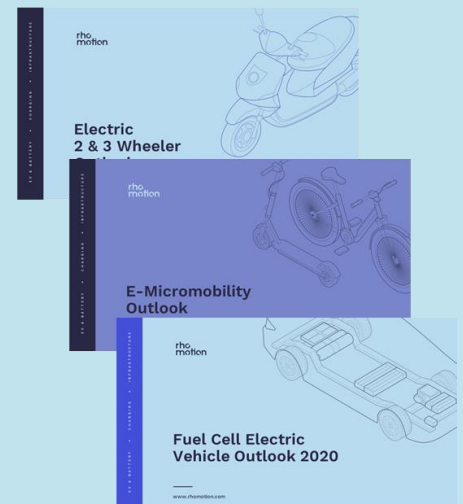
Monthly Assessments & Databases

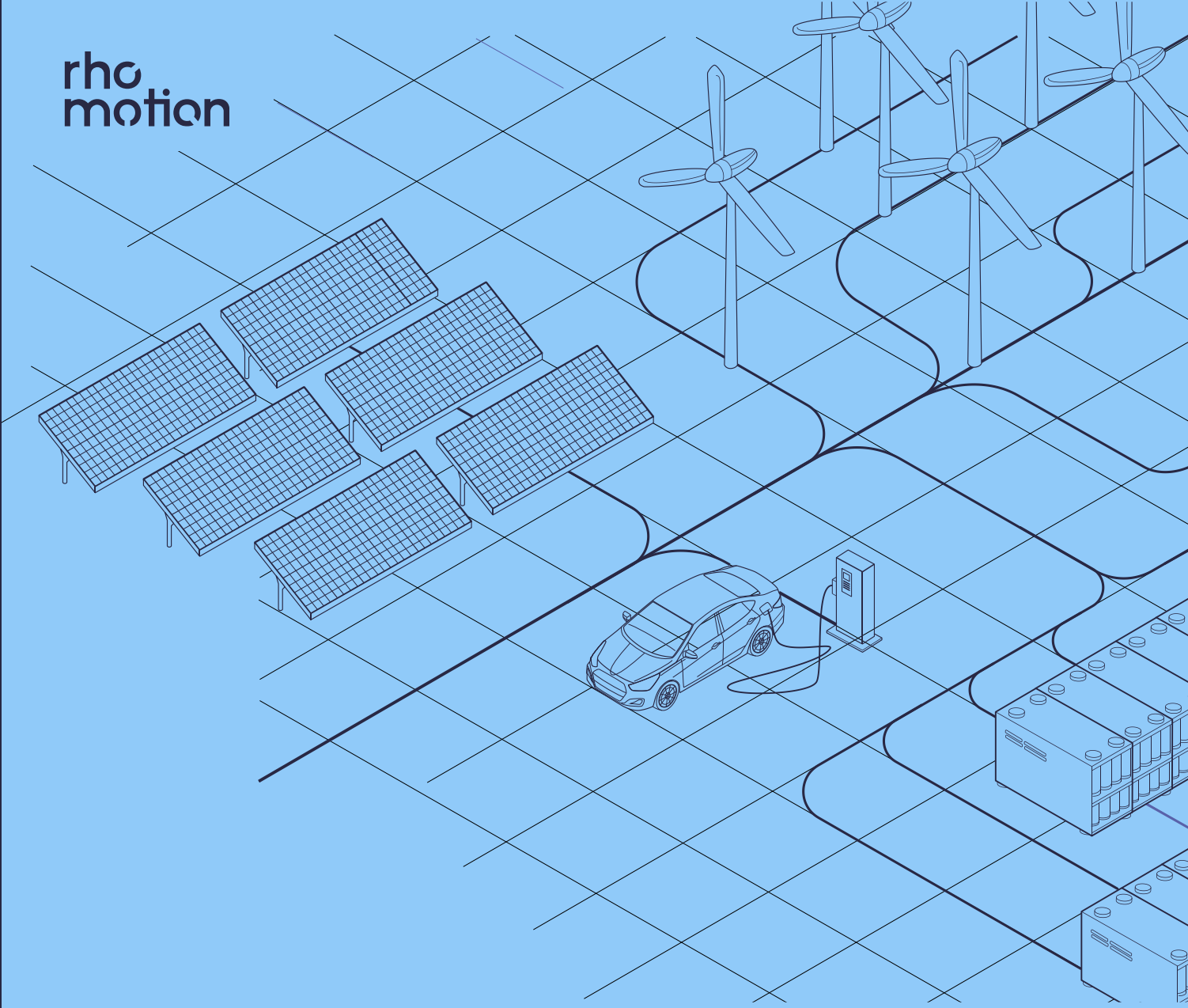


Quarterly Outlooks



Focus Reports





Get in touch

Email: info@rhomotion.com

Tel: +44 (0) 203 960 9986