

# EV, Battery & Charging Industry Survey

## Q1 2021

# Survey Introduction & Demographics

Dear Colleague,

Thank you for taking part in our EV, Battery & Charging Industry Survey for Q1 2021.

The intention of the survey is to act as an industry resource, by drawing together a range of perspectives from different points in the EV supply chain. In order 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 of 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
- EV Charging

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

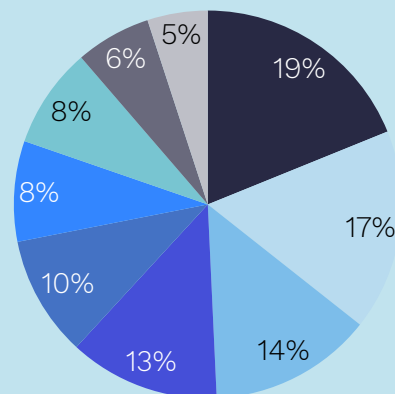
Please feel free to get in contact with any questions or comments .

Kind Regards,

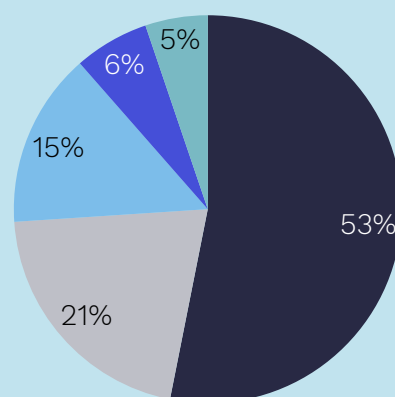


Adam Panayi  
Managing Director, Rho Motion

## Participant Industry



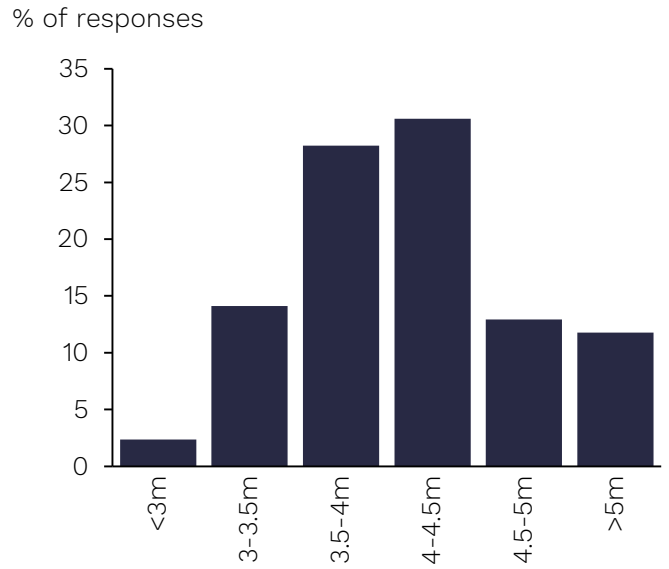
## Participant Geography



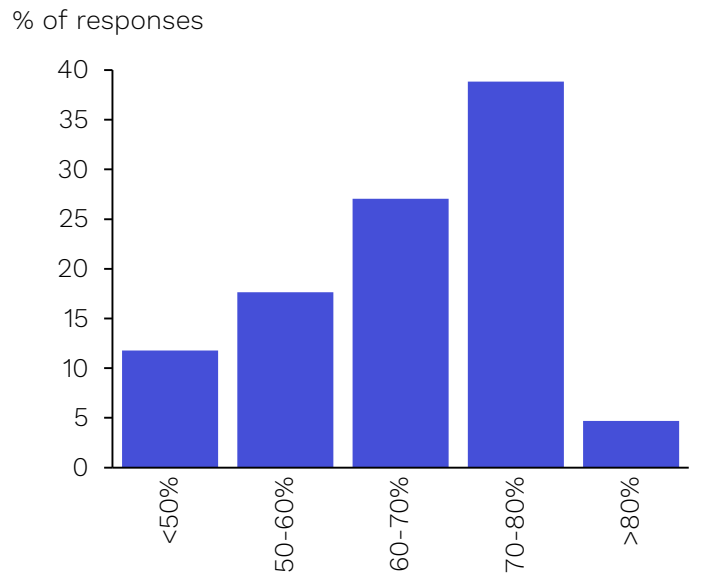
# Section 1: EV Sales

- Following a very positive 2020 in terms of EV sales, with more than 3 million units sold, the majority of respondents expect to see strong growth again in 2021, with over half expecting sales in excess of 4 million vehicles.
- Of these sales, a majority of respondents expect that over 60% will be BEV. Regional differences here have a big impact with Europe exhibiting a much larger PHEV share than China or North America. Which may explain some of the variance in the responses.
- In terms of the regional split most respondents believe that either China or Europe will lead the way, with opinion fairly evenly divided between the two, with North America third.
- For the EV market drivers, the ‘other’ category yielded some interesting comments, with charging, vehicle price and perception of EVs as clean big factors, as well as fossil fuel prices.

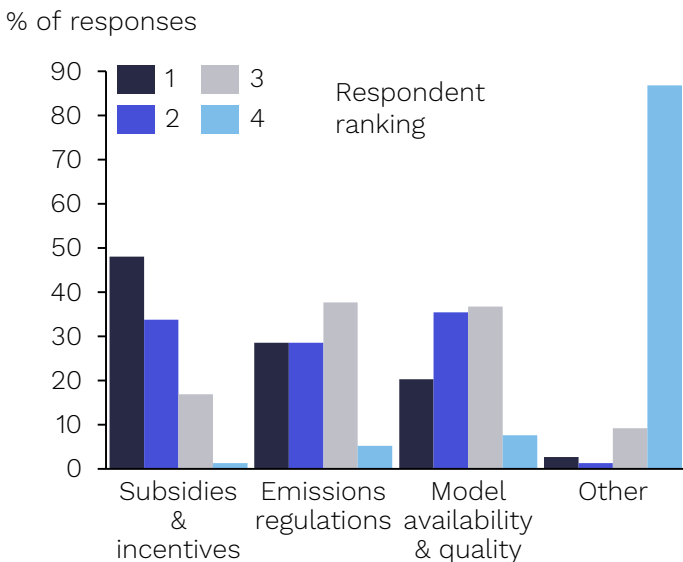
**How many BEV & PHEVs do you expect to be sold in 2021?**



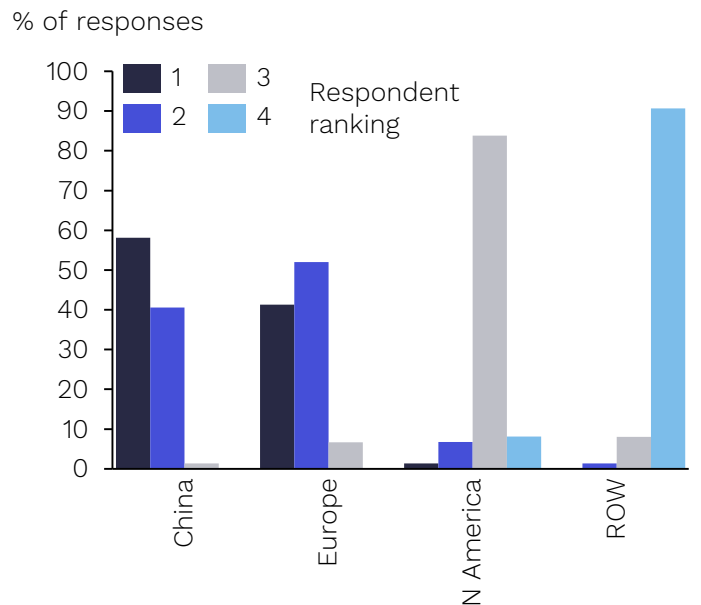
**What percentage of these will be BEV?**



**Rank the drivers of EV sales this year**



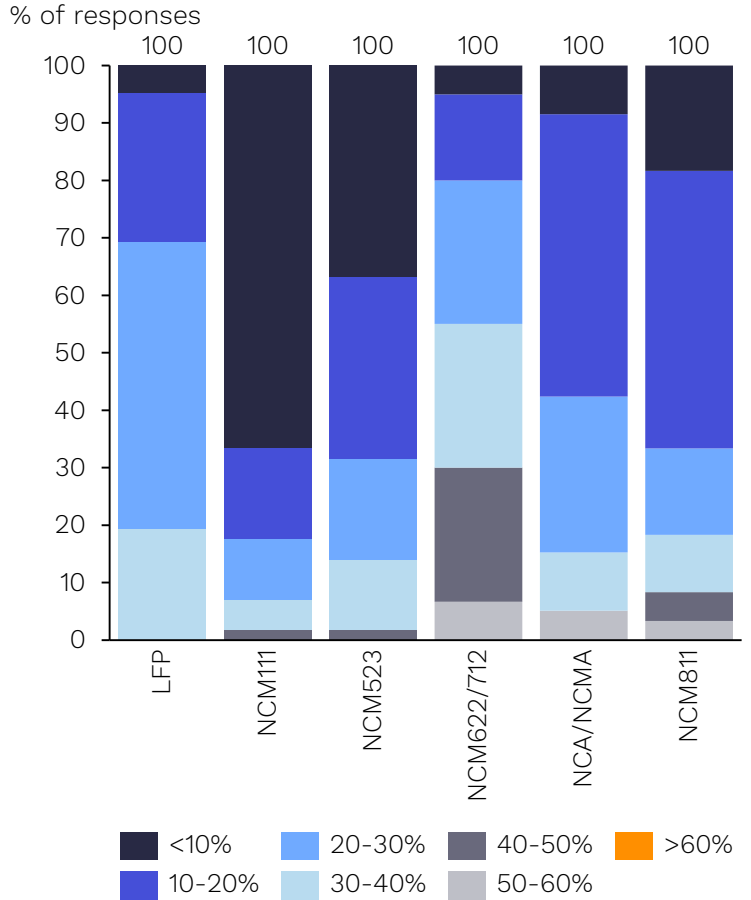
**Which regional market will be largest?**



# Section 2: EV Battery Technology

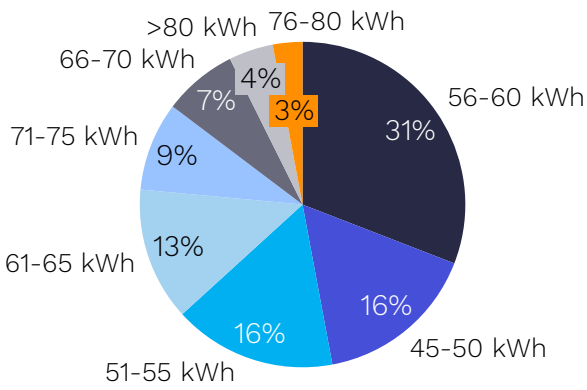
- In the charts on the right, the size of each stack reflects the share of responses for a given market share of each cathode or anode chemistry. You can see the majority opinion in terms of market share in virtually all cases is fairly clear, 20-30% in the case of LFP for example. The exception being NCM622/712 where respondents opinions were more divided. Presumably as there is some uncertainty over the speed of transition to higher nickel cathodes.
- 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.

**What are your expectations for cathode share in 2021?**

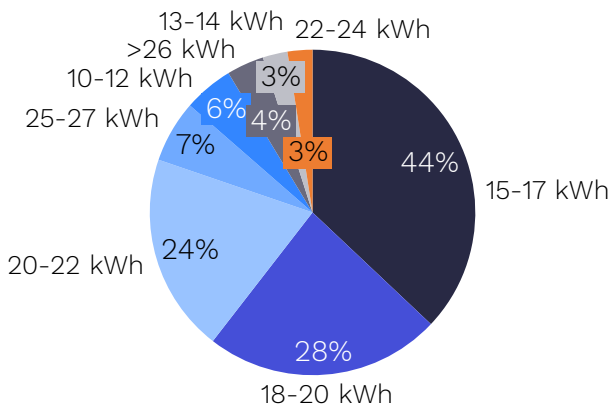


**What are your expectations for pack sizes in 2021?**

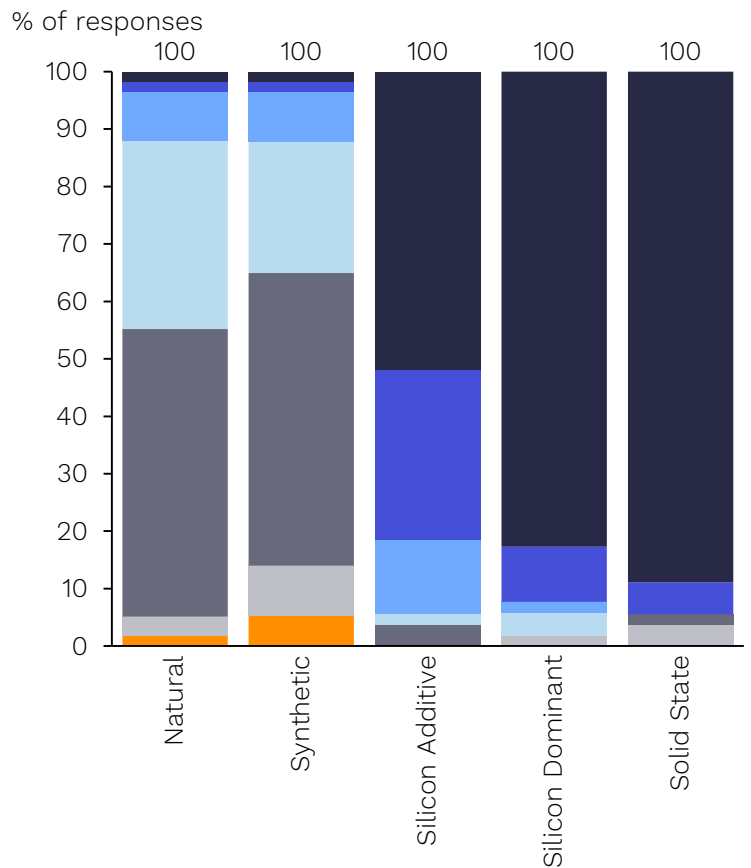
**BEV**



**PHEV**



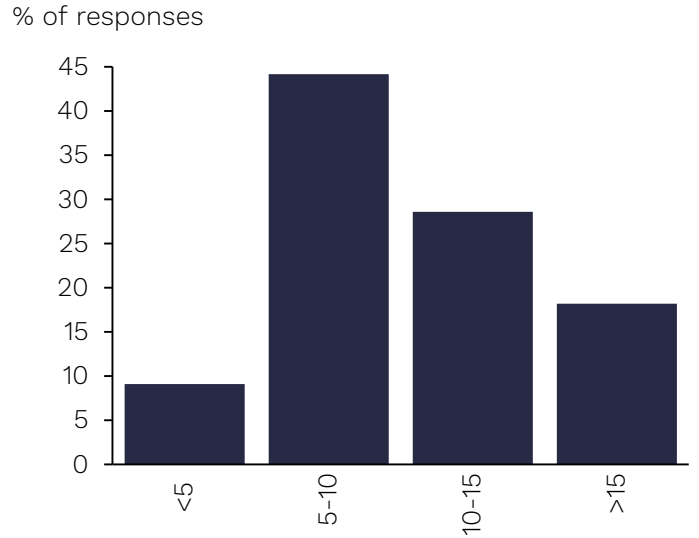
**What are your expectations for anode share in 2021?**



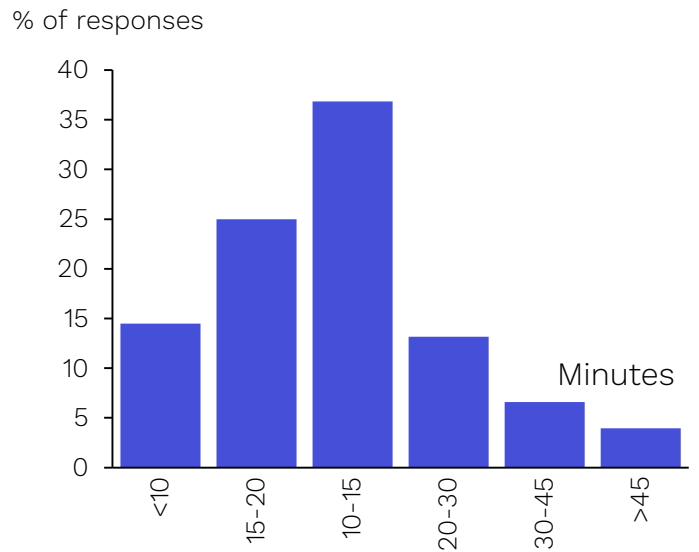
# Section 3: EV Charging

- Respondents views on the level of coverage needed for EV charging vary significantly, with only a small majority expecting that less than 10 EVs per public charge point are necessary. Some of this variability is likely to be attributable to the large range in charging covering that is required in reality, with demographic and geographic issues dictating higher or lower requirements in different locations.
- It is perhaps unsurprising responses on the maximum charging time permissible skew towards the lower end, and to currently unattainable charging speeds for larger pack sizes.
- The question of what is inhibiting the growth in charging speeds also provides a varied response. Again this may be due to the fact that multiple issues are in play at the cell, pack, vehicle and charge point level. With the step change in charging infrastructure investment for higher speeds is not currently justifiable while vehicle capabilities remain constrained.

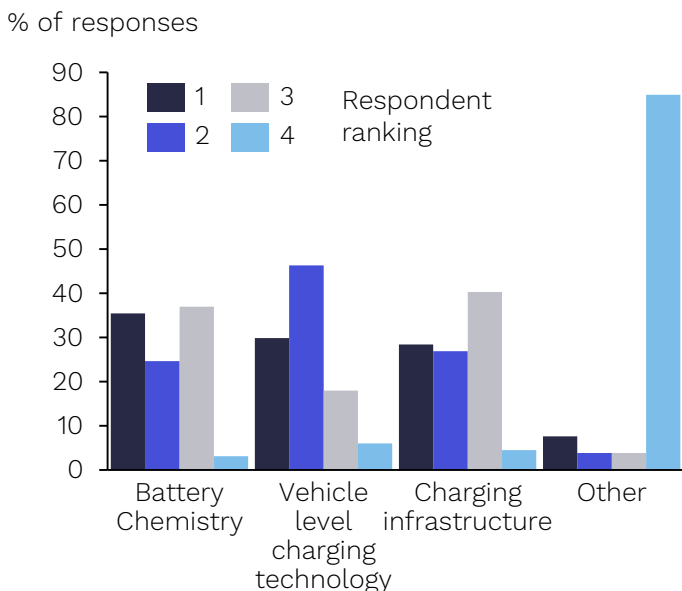
## What is the max ratio of EVs to public charge point to facilitate EV adoption?



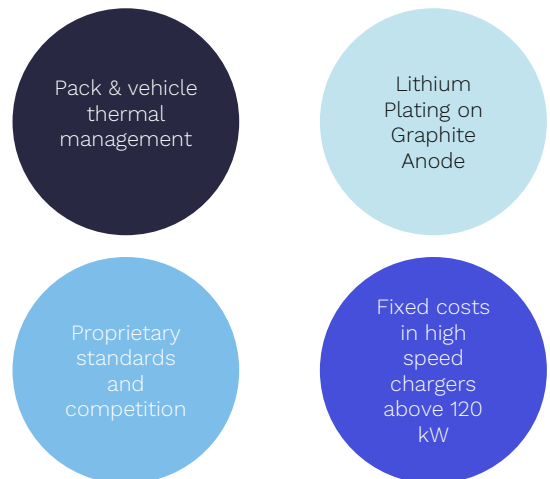
## What is the max charging time permissible to facilitate EV adoption?



## Rank the key restrictions on EV charging speeds

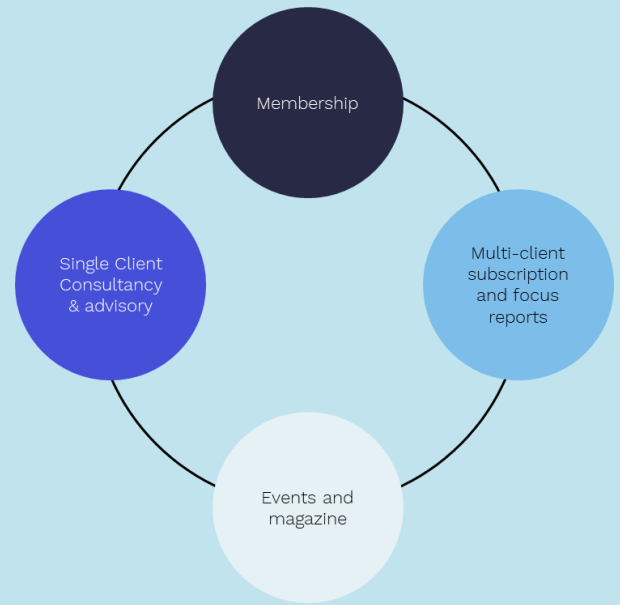


## 'Other' responses

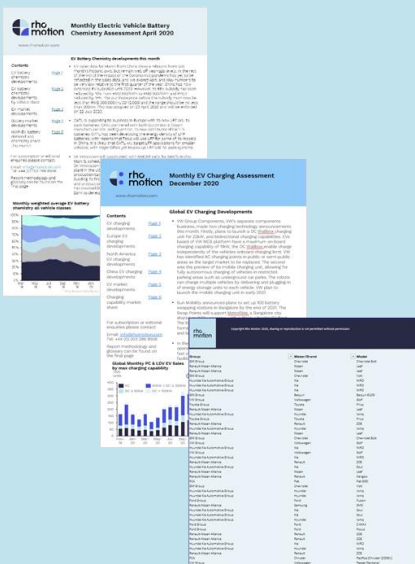


# About Rho Motion

- 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.



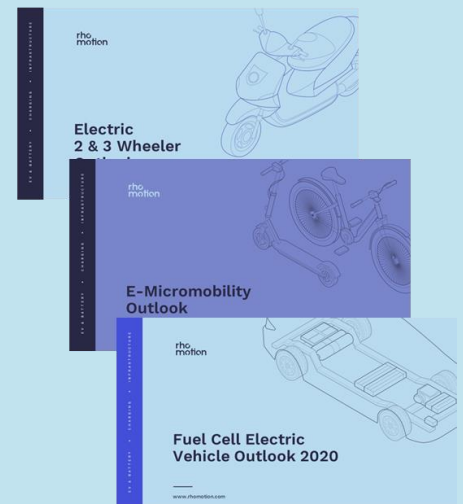
## Monthly Assessments & Databases



## Quarterly Outlooks



## Focus Reports



rho  
motion



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EV & BATTERY

