RSC CASE STUDY:
COMPETITIVE BENCHMARKING

RSC performs competitive benchmarking to encourage the evolution of advanced electrification technology

Ricardo Strategic Consulting (RSC) performs a detailed cost analysis of Chevrolet Bolt and Tesla Model 3 batteries to assist an international consortium in evaluating advanced energy storage technology and the requisite cost implications.

CHALLENGE

A consortium of automotive OEMs is interested in analyzing state-of-the-art batteries and the cost implications of emerging technology challenges RSC to evaluate passenger vehicle lithium-ion battery packs, estimate the total cost, and generate cost-benefit curves.

RSC leverages its engineering expertise, long history of electric vehicle benchmarking, and dynamic organizational structure to deliver this task efficiently.

APPROACH

RSC selects two representative batteries, one representing established automotive OEM design with large format pouch cells, Chevrolet Bolt, and a new entrant using small cylindrical cells, Tesla Model 3. RSC agrees with the client on the annual

production and other key assumptions. Subsequently, RSC employs the following costing methodology:

- **Conduct parametric analysis:** RSC completes full system teardown to understand and verify the functional parameters of each subsystem. RSC also documents part quantities, dimensions, material used, and supplier information. The outcome is a system Bill of Material (BoM).
- **Estimate component cost by market price:** RSC endeavors to estimate the market transaction price of the exact or similar part at agreed volumes. RSC accomplishes this with exceptional accuracy by leveraging supplier networks and applying statistical regression techniques to known prices. In addition to cost, other important outcomes are the understanding of cost drivers, assessment of the component market and identification of synergies with similar parts.
- **Estimate component cost by value add should cost:** RSC provides the client with a bottom-up forensic cost analysis. Part price includes raw materials, commodities, manufacturing processes, and direct fixed costs.
- **Synthesize and summarize findings:** RSC calculates the overall cost of each battery pack, highlights all critical findings, and quantifies each battery performance. RSC provides a final report and the BoM to the client in a systemic format.

RECOMMENDATIONS

The battery cost-benefit analysis from this study helps the client benchmark competitor's strengths, identifying engineering trade-offs, emerging technologies and sourcing strategies to achieve its business targets.

RESULTS

- RSC develops through rigorous analysis BoM containing hundreds of components with pricing. RSC analysis includes lithium-ion cells, high voltage hardware, printed circuit boards, plastic parts, metal structures, and harnessing
- RSC identifies innovations that improve battery performance or cost during the dissection of novel components
- RSC provides the practical implications of economics on the cost of critical components such as lithium-ion cells by analyzing public financial statements and scientific research papers
- Proprietary database, RSC generates plots of battery performance versus costs

- **Experienced xEV multidisciplinary automotive team**
- **Access to most current xEV sub-systems price database**
- **Expedited analysis and reporting**
- **Access to mass produced xEV subsystems hardware**

Find out more about competitive benchamarking.

Email: strategicinitiatives@ricardo.com
Tel: +(1) 734 394 3778
rsc.ricardo.com/capabilities/market-intelligence