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Chapter 2- Introduction and Methodology

Electric Vehicles (EVs) and electric mobility, as a whole, refer to the electrification of vehicle's powertrain. There are several types of powertrains with different storage solutions and sources of propulsion. Most developed markets have already been gone through their initial stages of EV adoption. However, the EVs market share is still negligible when compared to the total automotive sector. The 2015 global EV market share was below 1% of total global car sales. After subdued sales growth of EVs, we expect that demand will be gearing up over the coming years.

The uptake of the electric vehicles will continue to be stimulated through governments' subsidies, as well as supported by the automotive industry through a wide range of model offerings and increased awareness from the buyer side. Subsidies and purchase incentives will remain the main sales drivers, for at least the next five years.

A steady growing momentum behind electric vehicle adoption suggests that electric powertrain will play an important role in the future development of mobility. The uptake of electric vehicles will depend on several factors, including emission regulations, oil prices, availability of charging infrastructures and battery costs.

Chapter 2- Introduction and Methodology

2.4 Methodology

We have used a broad range of primary and secondary data to assess the market for electric vehicles in both volume and value terms. The starting point of our research was employing a literature review and extensive market research where we used a number of external sources, for instance, national and international industry associations, company reports and data, experts' opinions, trade statistics, end use sectors dynamics, industry news, policy documents, government bodies etc. We have then incorporated all our findings into our proprietary detailed excel based model which encompassed the whole world by regions and leading countries. We have developed numerous validation tools which continuously crossed checked the robustness of our historical data and forecasts.

For our market forecasts, we have developed Excel based forecast model, which was supported by both qualitative and quantitative methods. We have considered a number of variables in our forecasts including GDP, government incentives, technological improvements, disruptive technology, charging infrastructure, oil prices, charging batteries, raw materials costs, substitution of materials etc. In our forecasts, we have also used SWOT and PESTEL analysis to assess the impact of various factors influencing the growth of electric vehicles.

Both our historical and forecast data have also been crossed checked in the context of total cost of ownership compared to conventional vehicles. In addition, we have also taken into account the raw materials supply dynamics into our model.

Chapter 3- Regional Electric Vehicle Market

The EV sales growth decelerated in Canada as more expensive Tesla Model S secured a first position in the market, while Chevrolet Volt and Nissan Leaf slide down to second and third position respectively in 2015. We expect the market to correct itself in 2016 and customers are set to change their preferences back to the new 2016 Volt due to better price-quality ratio.

The Canadian electric vehicle market was worth \$XXX million in 2015 and almost XXX EVs were sold. The market is likely to grow by 25.3% year-on-year in 2016 and reach \$XXX million. The Canadian government have not set EV growth target yet and still in the consultation period. We do not expect any drastic shift in the policy towards EVs incentives. EV sales in Canada will grow at a faster rate till 2020 as EV purchase incentives will be exhausted by that time. From 2020 onwards, the market will slow down and reach the industry average growth rate.

Chapter 4 – Materials Market

4.1 Materials and demand structure

The use of aluminium in electric vehicles is expected to increase as automakers aim for reducing the weight of electric vehicles. OEMs will substitute heavy metals, mainly steel, which are used in cars body, chassis and frame with light metals such as aluminium. Additional demand for aluminium will come from new and advanced hardware as electric vehicles move towards full autonomy. More high technology devices and computers would be needed to achieve high levels of autonomy. Use of aluminium share in total materials used per car is expected to grow from XX% in 2015 to XX% by 2026.

Table 1.1 Materials and components segmentations by weight: aluminium, copper, glass, plastic, rubber, steel, battery, and others, 2015 and 2026 (kg)

Weight (kg)	2015	2026
Aluminium		
Copper		
Rubber		
Plastic		
Glass		
Others		
Battery		

Table 1.2 Demand by materials (aluminium, copper, glass, plastic, rubber, steel, and others) used in electric vehicles 2015-2026 (tonnes)

Weight (t)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Aluminium												
Copper												
Rubber												
Plastic												
Glass												
Others												

Chapter 8- Top 10 Companies in the EV Market

Some countries have already set targets for the number of EVSE required over the next 5 to 15 years.

- According to China State Grid, the Chinese government plans to install over 4 million private charging stations and approximately half a million public charging stations. The exact dates, however, are not set yet.
- The European Commission plans to install 7 million private charging points and 0.8 million public ones by 2020. The target is that there should be at least 1 charging point per 10 EVs. All EU members must set their EVSE targets by November 2016.

Chapter 8- Top 10 Companies in the EV Market

Table 86.1 Leading Companies in EV Market 2015 (Company, EV revenue \$)	
Company	EVs Revenue (\$)
Tesla	3,792,085,360
BYD	
Mitsubishi	
BMW	
VW	
Nissan	
Ford	
Volvo	
BAIC	
Renault	
Audi	
Chevrolet	
Zotye	
SAIC	
Porsche	
Toyota	
KIA	
Mercedes	
Chery	
JAC	
Fiat	
MB	
Zhidou	
Kandi	
Chevy	
Dongfeng	
JMC	
Geely-Kandi	
Others	

Chapter 8- Top 10 Companies in the EV Market

Renault is a French automobile manufacturer that sells cars under its own brand name as well as under Dacia and Renault Samsung. The company is expecting a strong boost in sales, around \$55.5bn in 2016, following the depressed economic climate in recent years. A downside risk for the company is the shrinking French car market on which Renault is highly dependent and has a large market share.