Expansion into the Asia-Pacific Electric Vehicle Market

- Tupps Motors International

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Introduction

The environmental impacts of global warming are of increasing concern amongst consumers, corporations, and governments today. With the transport industry contributing nearly a quarter of total greenhouse gas emissions, electric vehicles (EVs) are becoming a popular alternative to traditional, fossil-fuelled internal combustion engine vehicles (ICEVs) (Department of Climate Change, Energy, the Environment and Water, 2023). Research highlights the increasing market share of EVs, with 14% of all new cars sold in 2022 being electric, while in 2021, this figure was 9% (IEA, 2023). Further, in the first quarter of 2023, 25% more EVs were sold than in the same period of 2022 (IEA, 2023). Given that the Asia Pacific accounts for the largest share of EV sales worldwide, the objective of this report is to advice Tupps Motors International (TMI) whether expansion into this market is a viable business strategy (Statista Research Department, 2023). This report outlines market considerations such as infrastructure, competition and trends, government policy and incentives, and potential risks pertaining to this business decision. It also offers recommendations on countries with the highest market potential, top EV brands and suggested price points, and further planning recommendations.

Decision planning and process

Effective decision making creates a platform for leaders to fulfil their responsibilities, follows a robust, rational process and is therefore defensible to others. Using data to inform decisions can lead to more effective decision making as it allows decision makers to be more informed. Basing their decision to expand into the Asia Pacific EV market on data allows Tupps Motors to be more objective and agile in their planning. Research based decisions can be measured, which will allow changes and new opportunities in the market to be detected. Whilst intuitive decision making can be effective, it can lead to this essential information being missed. Expansion into the Asia Pacific EV market is a long term, strategic decision by the Tupps Motors management team. By gathering ideas and analysis from the team at Tupps Motors International, Brian and Ben are engaging in a consultative decision-making process. This style is more inclusive of stakeholders than some other forms of decision-making. The stakeholders who will be impacted by this business decision include employees, management, investors, the environment, suppliers, customers, and competitors. Whilst these stakeholders will be considered throughout this report, the

limitations of this report impact the level of inclusivity possible. These limitations include a lack of up-to-date or complete data, significant paywall barriers, ongoing political and economic uncertainty, and limited statistics on the costs, challenges and saturation of the Asia-Pacific EV market. Research was also limited by time constraints; therefore, extensive stakeholder consultation and inclusivity has not been possible.

Research and Findings

Locations

Figure 1.

Country	Population	GDP per capita (USD)	Registered vehicles per 1000 people	EV share of new-vehicle sales (%)	Comments
Australia	26.4 mil	$64.96k	757.4	2.9	Familiarity with market. Large land mass. Multiple cars per home. Government funding of EV infrastructure.
China	1.413	$13.72k	210.2	16.1	Trade between Australia and China limited due to geopolitical landscape. China's recent trade ban with Australia imposes major risks. China is world's largest EV manufacturer. Highly competitive with start-ups. 8 EVs per public charger.

India	1.39 bn	$2.6k	158.8	0.5	Experiencing growth. Given average household income and road crowding, two-wheeler EVs dominate market. 7 EVs per public charger.
Japan	123.7 mil	$35.39k	642.6	1.2	Small land mass. Significant EV and hydrogen investments and infrastructure.
New Zealand	5.1 mil	$48.83k	783.3	1.2	Small land mass, regular long-distance driving, EV government policy.
South Korea	52.0 mil	$33.39k	500.5	6.5	Small land mass, extensive EV government policy, expanding hydrogen market.

Figure 1 reference list:

Collinson, E., & Bell, C. L. (2023, April). *Australia-China monthly wrap-up.* Australia China Relations. Retrieved May 27, 2023 from https://www.australiachinarelations.org/sites/default/files/202304%20Australia-China%20monthly%20wrap-up%20%E2%80%93%20April%202023_0.pdf

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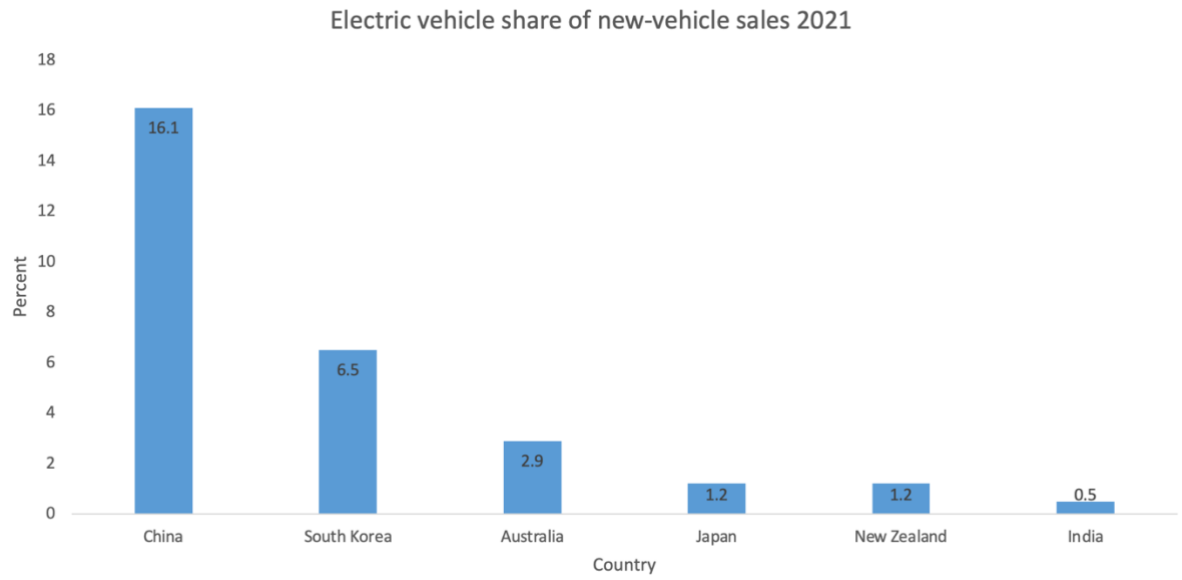
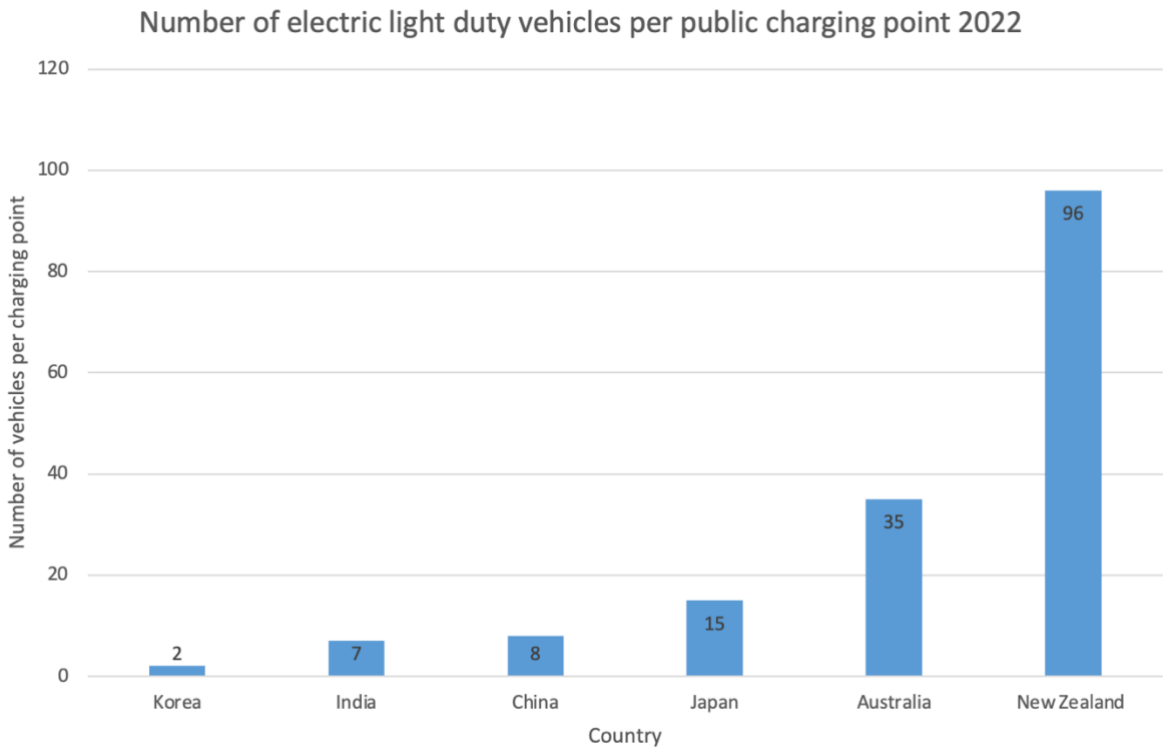
As illustrated in the table (Figure 1), India and China are countries with high population density, and a low EV to public charging point ratio. Despite this, the GDP, rate of vehicle ownership, and preference for two-wheeled EVs in these countries create affordability and demand barriers. Furthermore, although China is leading in the share of new vehicle sales by EVs at 16.1% (Figure 2), Australia's trade relationship with China is unpredictable. Whilst China is lifting its recent trade bans with Australia, a shift in this position could pose significant risks to Australian companies trading in China. Further, market saturation in China is high due to the massive emergence of EV start-ups in the country, meaning capturing market share could be challenging.

Figure 2. (Source: IEA, 2023)



In New Zealand, the GDP, small land mass, EV legislation and rate of registered vehicles are conducive to a thriving EV market as consumers are able to afford cars and prefer cars over other modes of transport. Despite this, the country's low population density and ratio of 96 EVs per public charging point indicate the market does not yet support the lifestyle of long-distance driving preferred by New Zealand customers (Figure 3).

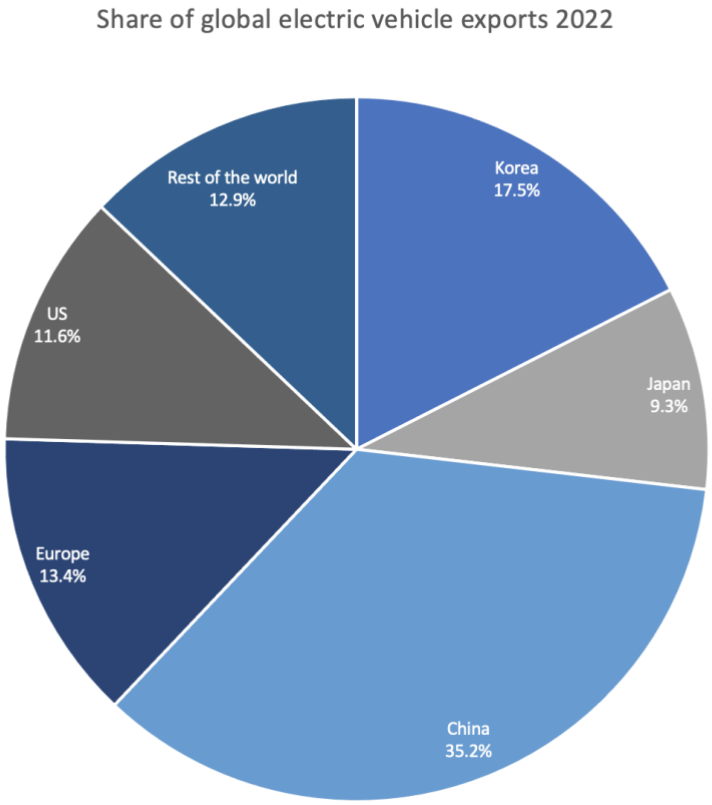
Figure 3. (Source: IEA, 2023)



In Australia, large land mass, low population density and the ratio of EVs per public charging point (35) are barriers to EV uptake. Yet, implementation of EV government funded infrastructure policies, rate of vehicle ownership (including multiple vehicle ownership), and GDP, are all high in Australia. Therefore, EVs have the potential to be marketed as the “city car”. Given that TMI is Australian, the company can also capitalise on its knowledge of regulations and the market, distribution networks, and established infrastructure such as employee base.

As seen on the graph, the GDP, population density, small land mass (meaning public charging infrastructure is concentrated), and vehicle ownership levels in South Korea and Japan are promising for market penetration. These countries also have significant government subsidies for EV purchases, investments in the industry, significant shares of global EV exports (Figure 4), and hydrogen markets. Whilst Japan has 15 public charging points per EV, Korea is a market leader with 2 per EV. Based on this research, the EV markets of South Korea and Japan, as well as Australia are determined to have the most potential. This report will further examine the viability of these markets for the expansion of TMI.

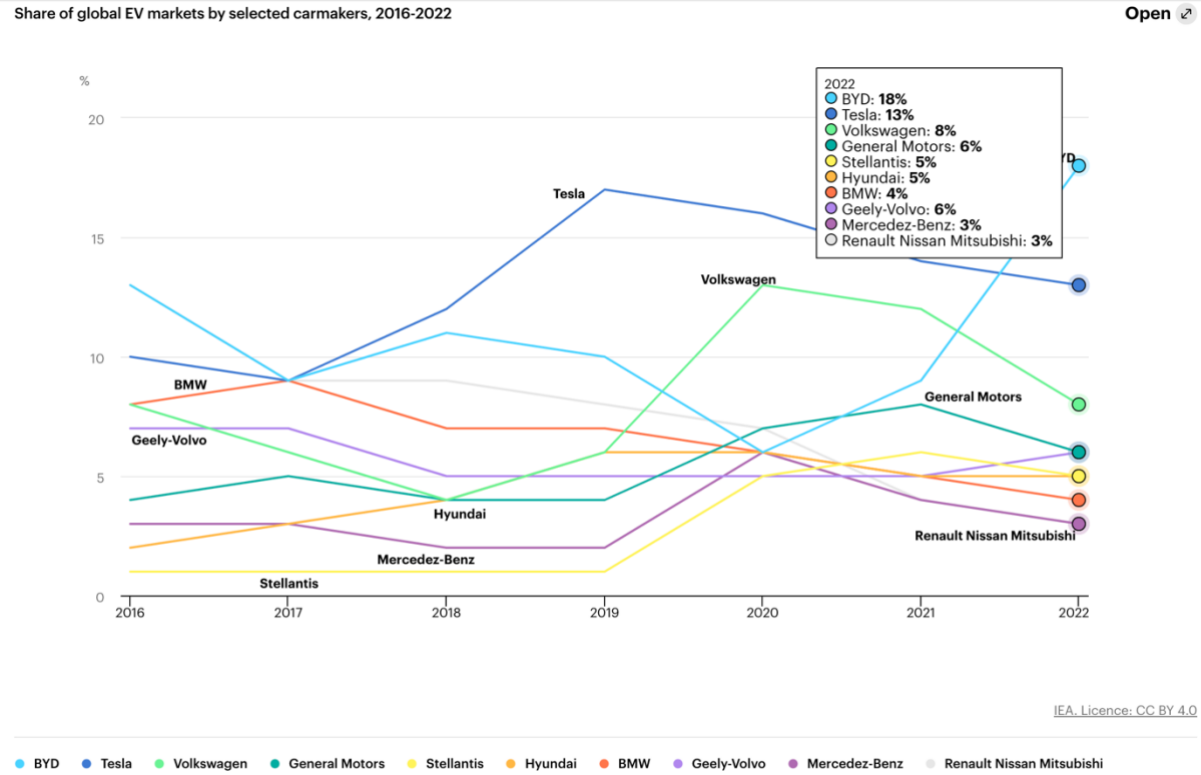
Figure 4. (Source: IEA, 2023)



Market considerations

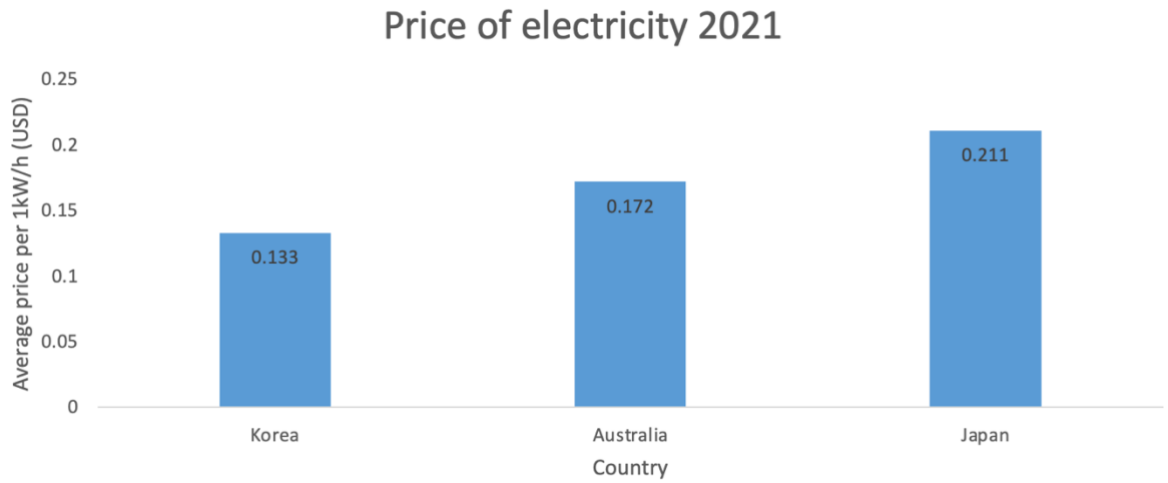
As burning fossil fuels is a significant contributor to climate change, the demand for vehicles powered by clean energy is increasing. There are two primary types of electric vehicle- battery electric vehicles (BEVs) and Fuel Cell Electric Vehicles (FCEVs). BEVs account for over 70% of total annual growth (Sturzenberger, 2022). However, FCEVs (powered by electricity converted from hydrogen) are increasingly popular in South Korea and Japan (Mordor Intelligence, 2023b). FCEVs offer fast refuelling times and mitigate battery mining and recycling environmental concerns (Jung et al., 2022). Corporations in Australia, South Korea and Japan are investing heavily in EV technology, such as Korea's Hyundai, SK, POSCO, Hanwha, and Hyosung committing KRW 42 trillion (A$46.6bn) to the hydrogen economy by 2030 (IEA, 2021, Khan et al., 2021). Incumbent car brands such as Volkswagen are expanding into the EV market, whilst EV brands such as BYD are experiencing significant growth (Figure 5).

Figure 5. (Source: IEA, 2023)



Research highlights that in all three countries, consumers are reluctant to purchase EVs over ICEVs, two-wheelers or taking public transport due to the relatively high price point, limited public charging facilities and short driving range (up to 400 miles) (Beak et al., 2020; Jang & Choi, 2021; Philip et al., 2023). These barriers are shrinking rapidly, such as the decrease of EV prices (such as Tesla's discounts of up to USD $34,000), and government investment in public charging infrastructure (IEA, 2023; Mordor Intelligence, 2023a). Further, powering a petrol car costs $2,400 annually, compared to an EV's $400 (Department of Climate Change, Energy, the Environment and Water, 2023). Given the benefits of EVs, IEA (2023) forecast the sales share of EVs in 2030 to be 30% in Japan and Australia, and 60% in South Korea.

Figure 6. (Source: Cable.co.uk, 2021)



Government policies

In order to achieve clean energy targets, it is imperative that governments implement relevant legislation. Whilst most countries are not yet on track to meet targets, Japan has become a leader in clean energy policy. The nation's Green Growth Strategy (2021) outlines plans for all new car sales to be electric by 2035, the increased manufacturing of vehicle batteries to 100 GWh and the construction of 150,000 public charging stations by 2030 (IEA, 2023). Japan's subsidy plan of JPY 70 billion (USD $530 million) also compensates EV purchases up to JPY 850,000 (USD $6,500).

Whilst the Australian federal government has implemented policy to support the commercial purchase of EVs, state governments are subsidising personal EV purchases or removing stamp duty and import tariffs (IEA, 2023). The Australian government is also investing in widespread public charging and hydrogen refuelling infrastructure, a net zero emissions Australian Public Service fleet by 2030, and committing AUD $100 million (USD $65 million) toward domestic battery manufacturing (Department of Climate Change, Energy, the Environment and Water, 2023; IEA, 2023).

In Korea, EV consumers can benefit from government subsidies of up to KRW 12 million (USD $9,300), as well as local subsidies. These policies fully subsidise vehicles below 60 million won (USD $52,000). The Korean government invests

heavily in fuel cell and battery charging technology, with plans to develop 2.1GW of commercial and residential fuel cells by 2040 (Australian Trade and Investment Commission, 2022). This Hydrogen Economy Roadmap (2019) also sets out a goal of 2.9 million fuel cell cars by 2040.

Risk management and other considerations

The decision to expand into the EV market can introduce new risks to Tupps Motors. Given that circumstances are constantly changing, it's important that risk management strategies are in place for when business decisions don't go to plan.

Risks such as supply chain disruptions, critical mineral price volatility and geopolitical conflicts can pose significant risks to EV production. Given that in 2022, 35% of exported electric cars came from China, a change in trade relationship with this nation could significantly disrupt TMI's supply chain (Statista Research Department, 2023). Scenario planning to determine what the company will do if these risks occur can allow TMI to stay agile, such as planning to source stock from different countries if required.

Risks that could impact the sales of EVs by TMI include a change in government legislation, a drop in the price of oil-based fuels and the emergence of new competitor brands. For example, the share of government spending on subsidies from 2017 to 2022 decreased from USD $9,000 to USD $4,000 per electric car (IEA, 2023). Jang and Choi (2021) indicate that the market share of EVs significantly increased when the purchase price decreased. Therefore, a decrease of government subsidies could cause the opposite to occur. A change in government subsidy allocation can also impact the sale of specific brands, such as Tesla in South Korea, given that its price point is above the recent subsidy threshold. Forecasting using evolving data can allow TMI to register the impacts of these changes on EV demand and change business strategy, such as stocking different brands, as required.

Recommendation

With global EV sales increasing from 120,000 annually in 2012 to 120,000 weekly in 2022, expanding into the EV market is recommended for TMI's growth (IEA, 2023). The top five BEV brands are BYD Auto, General Motors, Groupe Renault, Volkswagen, and Tesla (Mordor Intelligence, 2023a), which are recommended for distribution in Australia as they include accessible introductory price points (USD $30,000 for the Chevrolet Equinox EV) and long driving range (400 miles for the Tesla model S) (Farmer et al., 2022). In Japan and South Korea, increasing government and corporate funding of hydrogen fuel technology indicate high confidence in this area. It is recommended that TMI stocks Japan's Toyota and South Korea's Hyundai in these countries, rather than Volkswagen (given its higher price), to gain a competitive advantage.

As price is the largest barrier to EV purchase, it is recommended that TMI distributes competitively priced models between USD $30,000 - USD $45,000 in Australia, Japan, and South Korea (Misoyannis, 2022; Trencher & Wesseling, 2022). This price point will also allow consumers to enjoy full government subsidies in these countries (IEA, 2023; Khan et al., 2022).

Given the limitations of this report and rapidly evolving nature of the EV industry and global economic and geopolitical landscape, it is recommended that TMI undertake further planning and feedforward control measures. This could include a SWOT analysis, an evaluation of internal resource allocation and crisis-response strategies, and further analysis of changing trends, government policy, the emergence of new EV market leaders and the consultation of a wider variety of stakeholders.

Summary

The objective of this report is to assess the viability of the Asia Pacific EV market for distribution by TMI. This report examines whether India, China, New Zealand, Australia, South Korea and Japan are appropriate locations for effective market penetration, and outlines market considerations including competition, demand and EV infrastructure. It also outlines government policy pertaining to EV dispersion, examines potential business risks and offers achievable recommendations for expanding into the EV market. With IEA (2023) predicting that the global fleet of EVs

could grow from 30 million in 2022 to 240 million in 2030, the findings in this report indicate that the EV market holds potential for massive growth if expanded into strategically.

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