

Electric High-tech Car and Environment Sustainable: Analysis of Tesla's problems

Peilin Li*

Lang Business School, University of Guelph, Guelph, Canada

*Corresponding author: peilin@uoguelph.ca

Abstract. New energy vehicles and environmental issues have become hot topics with the changing times. Ecological protection and renewable new energy are more and more concern by people all over the world. Tesla has had issues with battery technology so far, and Tesla CEO Elon Musk said in an interview that Tesla's battery issues could be resolved within 40 years. In the future, Tesla can mine fewer resources on Earth. COVID-19 has swept the globe, causing economic setbacks around the world. Tesla Inc. has also been impacted by covid-19, curtailing employees and company operations to varying degrees. Covid-19 will also affect Tesla's problems in logistics and distribution. Tesla can build a talent voyage program to cultivate talents and reduce the labor shortage problem. For logistics and distribution, Tesla can choose to expand factories around the world.

Keywords: Electric High-tech Car; Environment Sustainable; Tesla.

1. Introduction

Electric vehicles play an essential role in sustainable development strategic plans worldwide. With the continuous growth of automobile demand, new energy vehicles have become one of the ways to reduce the automobile industry's dependence on petroleum resources and pollutant emissions [1]. In the face of sustainable development, Tesla must also solve some technical problems with electric vehicles and consider some electric vehicle accessories. In addition, Tesla needs to deal with the labor shortage after the pandemic and the transportation of imported cars by governments worldwide. The significance of Tesla's research on electric cars is enormous, to publicize some of the impacts of carbon emissions on the environment. Use Millennials' curiosity about new energy vehicles to increase the popularity of Tesla's new energy vehicles. While Tesla needs to increase its market share, it also must vigorously promote sustainable energy's importance.

2. Case description

The depletion of fossil fuels and the awareness of sustainability has led many countries to choose to develop sustainable resources [2]. According to the website "about tesla", Tesla is an electric car maker and clean energy company led by Elon Musk, founded in 2003 by a group of engineers. In addition, Tesla is also the largest electric vehicle dealer. Tesla launched the roadster in 2008 and demonstrated the top-of-the-line battery technology, contributing to sustainable resource development.

Fundamental on the website "about tesla", The mission statement of Tesla's is accelerating the world's transition to sustainable energy. However, the batteries of Tesla's new energy vehicles lose their ability to store electricity as consumers use the car for years. The covid-19 outbreak has also caused damage to Tesla's ability to do business. Tesla Inc. has also cut employee salaries as it scales back its global operations. Notably, the covid-19 outbreak has indirectly caused Tesla's logistics and distribution problems. As reported by Tesla company, Tesla wants to invent the most affordable vehicle in the world to date. And more and more consumers can afford new energy vehicles to achieve the sustainable development of the world's energy.

3. Case analysis

3.1 Battery and heat pump problem

Tesla's new energy vehicle is the most popular electric vehicle brand in the current new energy market. Over time, the battery in an electric vehicle will slowly lose some of its ability to store power, just like a cell phone battery has a lifespan. According to the website "car and driver", Tesla Model 3 lost 7% of capacity over 24,000 miles. Tesla's battery electric vehicles (BEV) do not emit pollution, but BEV batteries are costly. Lithium batteries account for 50% of the cost of BEV. The most crucial issue is that the high demand for battery components has led to shortages in the supply chain, with some rare metals in short supply[3].

Moreover, the basis on the website, consumer reports mention that Tesla's batteries have received many complaints from multiple owners. Some Tesla owners have complained that Tesla cars don't heat up in cold weather. The Tesla manufacturer issued extensive recall notices in 2021 and 2022. According to the website consumer reports, The Tesla manufacturer has recalled the Tesla Model X SUV manufactured between October 31, 2021, and January 11, 2022, and models manufactured between June 30, 2021, and January 11, 2022. Tesla Model Y SUV. Lithium is the lightest metal in the world [4]. At that time, the quality and price of lithium were uncontrollable factors, and lithium brought uncertainty to the growth and expansion rate of the global electric vehicle industry [4].

Tesla CEO Elon Musk mentioned that Tesla's new wireless software could fix the problem with Tesla's heat pump. According to the website inverse, the high price of batteries is also one of the critical problems when electric vehicles can replace traditional cars. Lowering the cost of batteries could better help Tesla promote electric vehicles. According to the website inverse, Tesla's CEO Elon Musk said the battery problem would be better resolved in 30-40 years. Tesla doesn't have to mine the earth to get more materials to make batteries.

3.2 Covid-19 impact and logistic problem

Basis to the "united states securities and exchange commission tesla", INC, the outbreak of covid-19 has led to a recession in the global economy, and Tesla Inc. has also been affected by covid-19. During the first half of 2020, Tesla's manufacturing plants worldwide were suspended, and Tesla delayed the Model 3 production date [5]. While Tesla has shortened its global operations, it has also implemented layoffs and pay cuts for temporary employees, leading to the forced departures of some employees. Tesla mentioned in its financial statement that in April 2020, due to the outbreak of covid-19, many temporary employees were laid off, and the base salary of other employees was reduced [6]. The wage cut sparked employee dissatisfaction, leading to employees resigning from Tesla [6]. In the future, when Tesla wants to expand its scale to recruit some new employees, there will be a labor shortage problem.

In addition, the pandemic outbreak has resulted in additional costs for some auto parts and a shortage of auto chips[7]. Notably, Tesla has experienced delays in adding new products and some product features, leaving the company unable to control manufacturing costs. Additionally, since Tesla does not have an independent dealer network. According to the "united states securities and exchange commission tesla", INC, Tesla is responsible and obligated to deliver the vehicles safely, which are sold to customers. Although Tesla has improved the logistics and distribution issues, it takes a lot of time to ship to international markets. As mentioned in Tesla's annual report, repairing Tesla's vehicles requires unique and notable expertise, and Tesla needs to strengthen its repair capabilities. The covid-19 outbreak is unprecedented for the automotive manufacturing industry as well as the marketing of the global supply chain[8]. Due to the pandemic outbreak, many governments have chosen to seal their borders, severely affecting the movement of goods[8].

Due to the outbreak of covid-19, Tesla will have a labor shortage problem in the future. Tesla can imitate Marriott's voyage program and build a talent voyage program belonging to Tesla. This strategy can help Tesla expand the company's talent pool and train some Tesla employees with special skills, further improving employee engagement and professionalism. According to the "Recruiting

Top Millennial Talent: Marriott's Secret Weapon", Marriott Group held some focus groups to better select talents, including college students and newly appointed managers.

Available to recent college graduates in more than 50 countries worldwide, Marriott's Voyage program combines hands-on experience with leadership training. Since its inception in 2013, 99% of Marriott's voyage program has been placed inside Marriott. Basic on the Marriott's voyage program has been very successful, not just as an onboarding platform. Managers can view the performance of employees in the plan through the platform of the voyage plan and can see the time and cost that the company spends cultivating talents[9]. Different professional growth is formulated according to the strengths of different employees. Tesla can create its talent plan based on the Marriott Group's voyage plan or choose to cooperate with the Marriott Group strategically.

3.2.1 Solution

Tesla has only six manufacturing plants in the world. Tesla's global headquarters is in Texas, where the Cybertruck and model Y. According to Tesla manufacturing, Tesla's first factory in Fremont, CA, is dedicated to producing model S, model 3, model X, and model Y. Tesla also has one of the largest factories in the world for making electric motors and batteries, located in Nevada. In addition, Tesla's New York factory is dedicated to making some solar roofs as well as solar panels. Tesla's first factory in China, located in Shanghai, is dedicated to producing the Model 3 and Model Y. Tesla's first factory in Europe is located in Berlin to have the Model Y and batteries.

Tesla can build more factories to expand Tesla's global market. For example, Tesla could open more factories in some parts of Asia where labor is cheap. Basic on the "LG hopes to make new battery cells for Tesla in 2023 in U.S. or Europe-sources", Tesla's CEO, Elon Musk, said he was considering building factories in countries that don't have Tesla. Tesla may be able to partner with LG Group. LG is headquartered in South Korea and plans to produce 4,680 cells in a US factory [10]. LG Corp. plans to build a new 4680 cell production line to supply Tesla's Giga Berlin in Europe. According to the "LG hopes to make new battery cells for Tesla in 2023 in U.S. or Europe – sources," it is reported that Tesla's rival Lucid Motors has a multi-year supply agreement with LG Chem and is considering whether to manufacture batteries belonging to Lucid Motors in-house. Also, Japan may not be a good place for Tesla to build a new factory, as Japan has a large number of car factories to compete with Tesla.

3.3 Carbon emissions and sustainability

Over time, millennials have become potential customers in many industries. More and more millennials are expressing a desire to see more sustainable brands. According to the Harvard business review, 70% of greenhouse gas emissions are determined by the products consumers choose and whether they are rationally using sustainable development theories to deal with these products. For example, consumers save water and energy when doing laundry or recycle containers after use. When consumers do not realize the importance of carbon emissions, it will lower market demand for Tesla, and brand value will be affected.

Raising awareness about the impact of carbon emissions on the environment is necessary. Prepare some electronic screens in Tesla stores to tell consumers about the environmental damage caused by excessive carbon emissions. Prepare some activities for customers-for example, a special discount for two people or groups to buy more Tesla cars. The special discount for old customers brings new customers to buy a car.

Depending to the Harvard business review, using social influence is also one of the effective ways to induce environmental behavior in consumption. A significant factor in whether people use a Tesla as a mobility vehicle may be whether the people around them buy a Tesla vehicle. A consumer's herd mentality, following the large army to choose vehicles. A critical point for consumers is Tesla's dealers' service attitude. And when Tesla dealers have some problems after selling new energy vehicles, whether the solution can satisfy consumers. The sustainable development strategy of Tesla's new energy vehicles that can protect the environment is persuasive to consumers[11]. However, how the policy information is constructed is very important. The government's attention has led to the

continuous expansion of the scale of some sustainable business companies. The purpose of Tesla's development of electric vehicles should be to change the global climate change and reduce the dependence on fossil oil consumption[12]. Incentive policies by governments worldwide are widely used to promote the development of electric vehicles to create a sustainable global environment[12]. Therefore, judging from the Harvard business review website, Tesla needs to work hard to improve brand relevance, increase market share, promote a sustainable environment, and fully communicate the brand's sustainability to consumers.

4. Conclusion

With the development of technology, sustainable energy is destined to become a development trend. Tesla will solve the problem of batteries well in the future, develop new materials that do not need to develop earth resources, reduce costs and achieve better sustainable development of new energy trams. In the future, the stable development of the new energy era will make the market potential of the entire new energy industry become larger and larger, and a large number of standardized things will be produced. Tesla can improve enterprise construction efficiency and allow the healthy development of the new energy industry chain. The impact of covid-19 on Tesla will also fade over time. Perhaps in the future world, new energy vehicles can promote people's better quality of life and make people's life more convenient.

References

- [1] Yuan, Liu, X., & Zuo, J. (2015). The development of new energy vehicles for a sustainable future: A review. *Renewable & Sustainable Energy Reviews*, 2015, 42, 298-305.
- [2] Sivasubramanian G. Electric vehicles-An Introduction of the Tesla case for strategy and leadership. *International Journal of Recent Technology and Engineering*, 2019, 8(2S8):1522-1524.
- [3] Li X, Liu W, Zhang B, et al. New entrants versus establishers in China and US electric vehicle marketplace: a comparative analysis. *Asia Pacific Business Review*, 2019:1-21.
- [4] Narins T P. The battery business: Lithium availability and the growth of the global electric car industry. *The Extractive Industries and Society*, 2017, 4(2): 321-328.
- [5] Boshkoska M, Jankulovski N. Coronavirus impact on global economy. *Annals of the „Constantin Brâncuși” University of Târgu Jiu, Economy Series*, 2020, 4: 18-23.
- [6] Qin Y, Xiao Y, Yuan J. The Comprehensive Competitiveness of Tesla Based on Financial Analysis: A Case Study, 2021 International Conference on Financial Management and Economic Transition (FMET 2021). Atlantis Press, 2021: 462-469.
- [7] Wu X, Zhang C, Du W. An analysis on the crisis of “chips shortage” in automobile industry-Based on the double influence of COVID-19 and trade friction, *Journal of Physics: Conference Series*. IOP Publishing, 2021, 1971(1): 012100.
- [8] Santharm B A, Ramanathan U. Supply chain transparency for sustainability-an intervention-based research approach. *International Journal of Operations & Production Management*, 2022.
- [9] Sharma D. How to recruit, incentivize and retain Millennials. Sage Publications Pvt. Limited, 2019.
- [10] Ulrich L. GM bets big on batteries: A new \$2.3 billion plant cranks out Ultium cells to power a future line of electric vehicles. *IEEE Spectrum*, 2020, 57(12): 26-31.
- [11] Chen K, Ren C, Gu R, et al. Exploring purchase intentions of new energy vehicles: From the perspective of frugality and the concept of “mianzi”. *Journal of Cleaner Production*, 2019, 230: 700-708.
- [12] Zhang X, Bai X, Shang J. Is subsidized electric vehicle adoption sustainable: Consumers' perceptions and motivation toward incentive policies, environmental benefits, and risks. *Journal of Cleaner Production*, 2018, 192: 71-79.