# Tesla Gigafactory’s Sustainability and Impacts

Tesla Gigafactory is based in the city of Sparks, Nevada. It deals with manufacturing of electric cars. The construction of the enormous facility began in 2014. However, since the launch of the project, it is only about 14% of the plan that has been implemented. Its main objective is to accelerate the process of transitioning from the current transportation into global sustainable transportation (Bilbeisi & Kesse, 2017). To achieve this change in the automobile industry, enough cars must be produced. The term Gigafactory comes from the company’s goals that were put in place to produce batteries worthy 35 Gigawatt-hours in a year. These batteries are meant for the electric cars and the running of the plant. Research shows that Tesla Inc. will yield many long-term economic and cultural impacts such as the improvement of economies of scale. This is because it will result in the development and progress of the economic assets. Since the birth of the idea about constructing the Gigafactory, the company is aiming at utilizing and increasing the supply of lithium batteries. Therefore, it targets at making use of renewable production methods (Bilbeisi & Kesse, 2017). This indicates that it has a target of developing a culture of influencing other companies in the same transportation industry to adopt the renewable production methods. Research further reveals that the company’s targets are to have a production of electric cars probably at a rate of 500,000 electric per year which needs a massive supply of lithium-ion batteries. Its objectives majorly revolve around the accomplishment of its construction so that the whole plan can be executed (Bilbeisi & Kesse, 2017). The plant will be entirely powered by renewable energy sources to achieve the goal of net-zero energy. This paper will provide a detailed research on the long-term economic and the cultural impacts of Tesla’s Gigafactory. Also, it will assess the impact of the project on the future as well as its sustainability in the storage of renewable energy.

## Long-term economic and cultural impacts of Tesla Gigafactories

According to the *Reno Gazette-Journal*, Tesla’s Gigafactories have already resulted in many economic developments. To start with, there have been a massive number of employees that have been employed by the company, and yet it is only about 14% of the project that has been completed. Therefore, many more people will get employment upon the accomplishment of the plant (Anderman, 2015). The already employed numbers include those individuals under the plant construction jobs. It is approximated that with the completion of the Gigafactory plans, about 6,500 employees will be needed to work at the Gigafactory (Bilbeisi & Kesse, 2017).

On the little progress that has already been made by the company, research indicates that it has served as the focal point of the country’s economic development. More precisely, the economic benefit already being enjoyed include the energy storages that have gone gradually but significantly improving, because the company has advanced from plug-in cars to grid-scale batteries systems. Its decisions to utilize raw materials like battery cells have created a market for the Panasonic partners (Bilbeisi & Kesse, 2017). The research by Bilbeisi and Kesse ( 2017) revealed that the automotive customers’ problems of charging their cars had been solved. It further showed that the customers had a solution and could rapidly charge their cars at home through Powerwalls.

The application of renewable sources of energy, such as solar energy, has greatly impacted Tesla and the entire state’s economy. Many customers have been attracted by automotive productions. It has many customers being interested in its automotive productions. This has improved the economy due to the increase in sales, which has strengthened business. With the building up of the Tesla’s Gigafactory, many benefits have accrued to the customers, including cost reductions (Bilbeisi & Kesse, 2017). Equally, the development of energy storage systems as well as the use of renewable sources, is approximated to save the company about 30% of its costs on battery cells. Despite that much has been improved regarding the economic progress, it has also been found that the Gigafactory is leading to the shooting of the economies of scale. This results from the fact that much has been invested in the project. Another research indicated that about $5billion has been invested into the Tesla’s Gigafactory constructions by the company itself as well as its partners and yet even the construction has not been finished (Anderman, 2015). This will in return increase the economies of scale for the country because much money from suppliers has been invested in the Gigafactory project.

According to Anderman (2015), Tesla’s Gigafactory project aims at utilizing as well as increasing the supply of lithium batteries. The whole essence is the utilization of renewable production methods. This indicates that it has a sense of developing a culture of influencing the other companies in the transportation industry to adopt the renewable production methods. This is supported by the promises made by Tesla to reduce tailpipe emissions through the adoption of recycling cultures into their Gigafactory system. They are working to ensure that about 98-100% recycling rates for the lithium-ion batteries are achieved. This will avoid the hazardous problems that are associated with lithium mining, and battery life cycles (Anderman, 2015). In this case, they have already adopted the recycling cultures for the lithium-ion batteries into the company. Additionally, they are taking into account of nickel, aluminum as well as lithium for use in the new batteries.

## The sustainability capabilities of Tesla’s Gigafactory to store renewable energy sources

Based on research conducted by Agnew & Dargusch (2015), Tesla’s Gigafactory plans are to produce one billion watts in an hour, which is one million times more than one kilowatt per hour. This will enable it to meet its objectives of producing as many cars as possible. That will be a probable rate of 500, 000 electric cars per year. This is because of a supple supply of lithium-ion batteries; rechargeable batteries from the Gigafactory. The research further shows that the company can sustain its renewable sources because it has dedicated approximately 35 Gigawatts per hour of production for catering and feeding all its internal EV needs. Additionally, the company is aiming at a 15 Gigawatt per hours for the stationary energy storage annually (Agnew & Dargusch, 2015). The Gigafactory can even result in significantly huge storage if the company does not spend a lot in the building. For the company to meet its 2020 objectives of producing 240,000 electric vehicles, it has put in place 20 Gigawatts per hour of excess amounts to feed the grid batteries as well as the stationary energy storage (Agnew & Dargusch, 2015).

The company’s plans are already impacting on their expectations especially on the grid storage. This was confirmed by Chris Shelton, the Energy Storage President when he said that the Gigafactory had shown important roles for the company’s decision on storage. He further added that the company made a wise decision to concentrate vast amounts of lithium-ion batteries for the next seven years (Agnew & Dargusch, 2015). Despite that the application of Gigafactory production is disruptive, it could be on the distributed solar battery front. Tesla and Solar City have already started the combination of solar PV and the meter batteries for residential and commercial purposes in California and some of the USA. Tesla is finding its batteries still expensive, but with the declining prices of solar as well as battery costs, it is making a cost-effective arrangement for the customers. With this, it indicates that the prices of the batteries will find its way to sustainability (Agnew & Dargusch, 2015).

Tesla and Solar City are laying a ground foundation to ensure that their Gigafactory energy storing system is sustainable. They have put groundwork to supply their technological needs with 1 Gigawatt of solar PV capacity or more in the coming years. Also, Tesla Gigafactory has planned to integrate with the Solar City on the battery storage side. The distributed energy storage assets will lead to maximizing the economic value. Many states have played significant roles in accepting the distributed assets of storage including Germany, California, New York and Hawaii. This is to ensure that the sustainability of the storage systems is maintained to store the energy for many years to come (Agnew & Dargusch, 2015).

## The impact of Tesla's Gigafactory on our future

Tesla Gigafactory has been estimated to cause a lot of effects on the future lives in different ways as shown in this section. Anderman (2015) indicates that Company’s electric vehicles will be of great importance to humans at large. The study adds that Telsa’s electric cars use the least charge when traveling and can take up to 320 kilometers on a single charge. This will make the vehicles efficient for traveling. Also, environmental conservation will be maintained because the cars do not produce the exhaust like the fuel vehicles do produce (Anderman, 2015). According to the company’s CEO Elon, the company has some charge-filling stations which will make it efficient for their drivers to get back to the journey faster making it good at having a well charging time. Once the electric vehicles are everywhere on the globe, transportation and movement of people from one place to another will be an easy task. This is because goods will be delivered on time as requested by customers and people will be at their works in time since the electric vehicles travel at a very high speed of 97 kilometers per hour. This will save time for public servants and translate that time for production and economic stability of the relative nations in the world (Anderman, 2015).

According to Anderman (2015), it has been explained that the company’s auto-driven vehicles will eliminate human carnage on roads. Elon explained that very many people lose their lives on the roads each year while traveling. These accidents make many children orphans leading to loss of parental care. These children hence opt for streets. Tesla has come up with the self-driving transportation mechanism where human beings are not involved in moving the vehicles. The research further adds that the automated systems in the vehicles are very fast to travel between places (Bilbeisi & Kesse, 2017). Despite that the technology is yet to catch up, it will widely reduce road carnages because many accidents are caused by the negligence drivers and the breaching of the traffic regulations while on duty. Therefore, the technology will reduce the number of accidents on roads leading to no more accidents in future.

Research reveals that Tesla is not only bringing high technology in transport sector but also it is bringing residential energy to the homesteads. Solar energy is the most abundant source of energy on earth and the cleanest source of energy. The company produces solar energy which will help people in future since the solar power is cheap and accessible to everybody (Anderman, 2015). The company has come up with different styles of designing their solar panels and making them attractive to their customers as they want. He further explains that the company came up with the design issues because many people never liked how the solar panels looked before. This will make many people love using the solar energy because they are designed according to the specifications of the customers themselves and because solar energy is clean energy, the environment will not be polluted leading to less global warming (Agnew & Dargusch, 2015).

The future is predicted to be entirely relying on the batteries that are produced by Tesla. Research proves this by indicating that the project has also come up with an attractive take on designing batteries. The cells are helping in moving the company forward regarding residential energy in many homesteads in the world; these are the Powerwall and Powerpack energy storage systems. Powerwall was introduced in October 2016 with a 14 kWh lithium-ion battery pack (Anderman, 2015). They can be fitted on the ground or the wall of the house for easy use. It can store much power which can be used by two bedrooms a whole day. The power can be stored when the solar is in plenty and be used when there is power outrage in homesteads where there is no solar energy system. Powerpack, on the other hand, was created to be used in commercial works since they are more efficient and have the highest power density. All the Powerwalls and Powerpacks have much help to human beings at large. For instance, businesses will be doing well because they will not be relying on the current electricity which is prone to blackouts most of the time. This will make the businesses to thrive tremendously leading to the stable economic growth (Bilbeisi & Kesse, 2017).

The company is estimated to employ many people probably 65,000 individuals. Tesla Company has created many job opportunities for the people of Nevada by employing hundreds of citizens within a short period. It has and will greatly improve the living standards of many people in the future through giving them jobs (Anderman, 2015). The research adds that with the growing technology, the company will employ more employees to do some detailed work. By hiring people, the company will solve the unemployment issues in some places. Many European nations are fighting for the next Gigafactory to be within their region of jurisdiction. By doing so, the company will have several branches in different nations. The unemployment issue is almost solved if the company extends its branches to more nations (Agnew & Dargusch, 2015). By spreading the offices, many people will get different jobs in the company leading to high standards of living. Therefore, unemployment will not be an issue at all in future with people.

The primary aim of the company is to reduce the cost of the batteries used by many vehicles. This challenge is to be breached by bringing together efficiencies and building lithium-ion batteries which are very cheap for many people. People can buy grail of $ 100 per kWh. This is a 30% reduction of battery cost and will happen by adding on the economies of scale. Also, it will optimize usage of renewable energy, and it will reduce wastes to the environment. Tesla CEO Elon Musk was quoted saying that the company is to change the quality of the batteries. The company will produce well-configured batteries and products with the world market of standards. This will also be an assurance to its customers that it is devoted to serving them by virtues of quality and dedication (Anderman, 2015). By doing this, the company is to triple the production of the batteries making it the highest producing company in arrays of 105 GWH cells and 150 GWH of completed battery stacks. This will ensure swift operation of many vehicles in the future.

## Conclusion

To summarize, Tesla’s Gigafactory has had many economic developments associated with it. To start with is the massive numbers of employees that have been employed by the company. It has served as the focal point of the country’s economic developments. The company’s energy storages have gone gradual but significantly improving as it has developed from plug-in cars to grid-scale batteries. Its decision to utilize raw materials like battery cells have created a market for the Panasonic partners. Equally, the development of the energy storage systems, as well as use of renewable sources, is approximated to save the company about 30% of its costs on battery cells. Since the Tesla’s idea of Gigafactory was born, it has been having the idea of utilizing and increasing the supply of lithium batteries. By doing so, the plant will be utilizing renewable production methods. This indicates that the project has a sense of developing a culture of influencing the other companies in the industry to adopt the use of renewable production methods. It has been noted that Tesla’s Gigafactory plans were to produce one billion watts in an hour. That translates to a million times more than one kilowatt per hour. This will enable it to meet its objectives of producing as many cars as possible. It is estimated that it will be producing probably 500, 000 electric vehicles per year. This will owe to supple supply of lithium-ion batteries; rechargeable batteries from the Gigafactory. Research shows that the company can sustain its renewable sources because it has dedicated approximately 35 Gigawatts per hour of production for catering and feeding all its internal EV needs. The Tesla Gigafactories has been estimated to result in a lot of impacts in the future in different ways. Most importantly, it will positively impact on economic development. Secondly, it will lead to health and environmental preservation. Research further indicates that the Company’s electric vehicles will be of great importance to humans at large. Telsa’s electric cars use the least charge when traveling and can take up to 320 kilometers on a single charge. This will make the cars more efficient for traveling. Lastly, environmental conservation will be maintained because the vehicles do not produce the exhaust other ordinary vehicles do produce.

## References

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