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EV IN US AND CANADA ANALYSIS

Electric car (EV) usage is expanding quickly, creating enormous financial prospects for the development of EV charging stations. It also works the other way around, a sufficient charging infrastructure aids in accelerating the switch from gasoline to electric mobility. The size and quantity of Charge Point Providers (CPOs) have grown rapidly in recent years for this reason. Since there were significant expenditures required, certain Charge Point Providers, notably Blink Charging, ChargePoint, EVgo, and soon Allego, decided to go public to create profit to enhance the expansion of their operation and charging infrastructure. Due to the high expenses involved in installing Electric vehicle charging stations, funding for site, supply equipment, labour, and energy supply is required. A charging point has a payback time of more than five years in most cases.

Installing new charging equipment in the top destinations is crucial to maximising their use and reducing the amount of time required for a financial return. It has been demonstrated that higher consumption will immediately boost the profitability on charging infrastructure income. Governments and commercial companies operating in the US and Canada are also interested in comprehensive network configuration because they want to encourage the use of electric cars and create the optimal environment for this to happen. However, because there are so many significant aspects, creating an adequate system for facility location and charging modelling process might be difficult.

From the map in the dashboard, it is seen that there are way more charging points in the US as compared to Canada. This implies that the usage of electric cars is more prevalent in the

us than Canada. This can be attributed to the fact that US has several of these electric car manufacturing company such as Tesla as compared to Canada. This thus affect the purchase power as well whereby the resident in US are able purchase them at a lower price as compared to Canada. It is even more evident that the usage of electric vehicles in Canada is more towards the southern side of Canada, closer to the US. This can imply that it is as a result of their proximity to the US border and therefore easy to make a car purchase in the US as compared to their compatriots in the upper regions of Canada.

The bar graph represents the network of the various charge point operators in terms of their service availability and utility across the two countries. From the illustration from the available data, it is seen that ChargePoint Network has the highest number of customers utilizing its charging point at various locations within the cities and towns. This implies that most electric vehicles owners prefer the ChargePoint's charging station maybe due to convenience, availability or pricing (free or lower rates). Tesla is the next company after ChargePoint that has more customers using their charging stations as compared to the rest, even though there’s a huge margin between the number of stations for Tesla and ChargePoint, where by it shows that ChargePoint has way more charging station within its network. It is also important to note that there are also a substantial number of charging stations that are not networked and therefore are run by individual owners. Hence it is also possible that these owners maybe offering services at a higher fee due to high set up cost as compared to the networked charging stations.

The other graph represents the prevalence of the various types of charger connectors types that are present in the various charging point operators within the cities. It is evident that the most popular charger connector type is the CHADEMO J1772 connector, followed by the J1772C variant of the same. The NEMA connector type comes third with the NEMA 1450 and

515 be the popular connector type variants. The last graph shows the types of facilities where one is likely to find a charging point operator. From the illustration, it is seen that the most charging points are located in convenience stores. This can be attributed to the fact that most travellers tend to stop at convenience stores along highways to replenish and thereby the store gets more influx of clients with electric vehicles as compare to other facilities. It is notable to mention that other facilities that are likely to have a charging point station include motor pool, parking garage, museum, hotel and also school. Other areas such as banks, arena, factory, fleet garage, grocery, prison, restaurants, storage have less charging point operators. This may be due to the high cost of set up and sustainability.