

Managing the Dragon Blog Post

An Inflection Point In The Global Electric Vehicle Industry?

By: Jack Perkowski | February 27, 2017

In the world of math, an inflection point is a point on a curve where the direction of the curvature changes. In the business world, an inflection point is a time of significant change---a turning point.

By any definition, the global electric vehicle (EV) industry appears to be at an inflection point. In fact, UBS, a large securities firm, believes that significant change is on the way and predicts that a growing global electric vehicle fleet will be [disruptive](#) to gasoline demand by 2031.

Since EV's first came on the scene earlier in this decade, the two main impediments to their growth have been their high sticker prices and the lack of a charging infrastructure. The high cost of lithium ion batteries has been one of the main reasons for the high cost of EV's compared to vehicles powered by an internal combustion engine, while EV makers the world over have faced a classic "chicken and egg" problem with respect to the charging infrastructure. Concerned with EV range and the availability of charging stations, consumers have been reluctant to purchase EV's. Yet, investors are reluctant to commit capital to a charging infrastructure until there are more EV's on the road.

Much progress has been made on both fronts over the past five years. The cost of a lithium ion battery is now just one seventh of its cost just five years ago, and in the world's two largest automobile markets---China and the United States---charging infrastructures are now being put in place.

In 2010, the cost of a lithium ion battery was \$750 per kilowatt hour (kWh). Today, General Motors claims that the cost of the battery cells in its Chevrolet Bolt are an industry [leading](#) \$145 kWh. Moreover, GM says that its goal for battery cost is \$100 kWh by 2022. \$100 kWh is considered to be the "holy grail" in the EV world because it is believed that, at that price, battery powered vehicles will be cost competitive with cars powered by internal combustion engines.

In May, 2014, China's State Grid [announced](#) that it would support the development of privately-owned distributed energy organizations, encouraging private companies to invest in electric charging stations. The unprecedented move on the part of the State Grid, one of China's largest state-owned enterprises with a monopoly on electricity distribution, has spurred investment in the charging infrastructure by a wide range of companies and investors. Going forward, China's goal is to have 4.8 million charging stations in operation by 2020, capable of meeting the needs of 5 million EVs.

In the United States, growth in charging stations has also

shown significant growth. From 2010 through 2016, the number of charging stations in most parts of the country have [increased](#) by 125 percent or more per year. Retailers and hotel owners are installing charging stations to attract customers; over 100 metropolitan cities in the U.S. have formed Clean Cities Coalitions, non-profit public and private partnerships that promote a clean environment, and are encouraging the installation of more chargers; and electric utilities, anxious to sell off-peak power, are investing in charging stations.

In January, for example, the city of Atlanta and Georgia Power cut the [ribbon](#) on 100 charging stations at the international terminal of the Hartsfield-Jackson Atlanta International Airport, with 200 more to come. Also last month, a group of California utilities announced that they have put together [proposals](#) totaling more than \$1 billion to electrify the state's transportation sector. Separately, San Diego Gas & Electric said that it will allocate \$4 million to install DC Fast Chargers for use solely by the city's taxi [fleets](#).

The U.S. charging infrastructure is set to get another boost from the Volkswagen Settlement Fund. As part of its [agreement](#) with the Environmental Protection Agency, Volkswagen has agreed to invest \$2.0 billion over the next ten years to promote the development and use of clean vehicle technologies in the United States, including investments in the nation's charging infrastructure.

With lower battery costs and an expanding charging infrastructure, worldwide plug-in car sales have tripled since 2013, and increased by 42 percent in 2016 to 773,600 units. China is the global leader by far, accounting for 351,000, or 45 percent of EV passenger car sales. This number does not count the 160,000 commercial vehicles, mostly all-electric buses, which were sold in China last year, as well as the 700,000 low speed electric vehicles that were sold and are popular in China's Tier 2 and Tier 3 cities. Following China, 221,000 EV's were sold in Europe and 157,000 were sold in the U.S. last year.

While EV sales, even in China, are still a relatively low percentage of the total vehicles sold each year, recent breakthroughs in technology and the investments now being made in the charging infrastructure are paving the way for much higher sales in the future. The global electric vehicle industry may indeed be at an inflection point.

<http://www.managingthedragon.com/?p=2567>