

# Impact of the COVID-19 Pandemic on the Electric Vehicle



## Introduction

The COVID-19 pandemic is impacting many business sectors in the U.S. and global economy, and the automotive industry is no exception.<sup>1</sup> There has been a sharp drop in crude oil prices, which is causing a sharp drop in gasoline prices.<sup>2</sup> Also, many vehicle manufacturing plants have had to temporarily close.<sup>3</sup> Furthermore, unemployment claims have been rising since the start of the pandemic.<sup>4</sup> All of these factors are leading experts to analyze how the electric vehicle market could be impacted by the pandemic.

Prior to the pandemic, as seen in Figure 1, electric vehicle sales have seen growth almost every year since 2010. One of the exceptions was 2019 which saw a slight drop in sales. However, that drop in sales has been attributed to supply-side issues with Toyota phasing out its Prius without having a successor and with GM losing production volume in switching over to the 2<sup>nd</sup> generation Volt.<sup>5</sup> The question many experts are trying to answer is: after the pandemic, how will the electric vehicle market be affected?

This report focuses on the electric vehicle market for passenger cars and surveys positive and negative views of the future of the market.

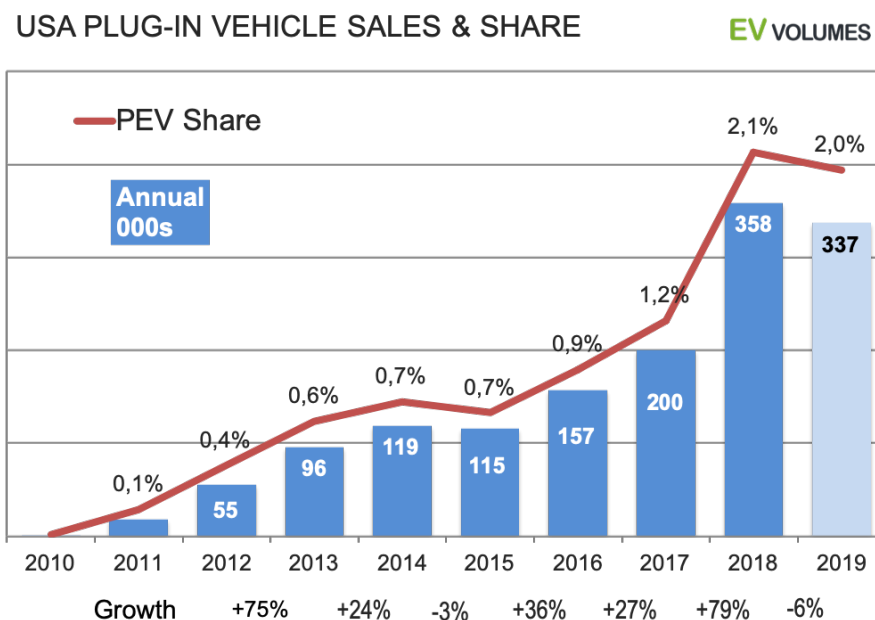


Figure 1. U.S. Plug-In Electric Vehicle Sales by Year Source: EV-Volumes

## Negative Outlook

There are several factors that give analysts cause for concern for the electric vehicle market during and after the pandemic including: shutdown in electric vehicle manufacturing plants, the price discrepancy between electric and internal combustion engine vehicles (ICE), and consumer confidence and awareness.

### Shutdown of Manufacturing Plants

One factor that some expect to harm the auto industry is the shutdown of vehicle manufacturing plants.<sup>6</sup> Many vehicle manufacturing plants have had to halt production temporarily and with fewer vehicles produced there will likely be fewer vehicles purchased.<sup>7</sup> Additionally, unionized auto workers believe that General Motors, Ford, and Fiat Chrysler should not restart production until there is sufficient testing.<sup>8</sup> Some analysts believe that the plant shutdowns will impact the electric vehicle market even more so than the auto industry in general.<sup>9</sup>

As seen in Figure 2, the consultancy firm Wood Mackenzie projects the global sales of electric vehicles to drop by 43% in 2020.<sup>10</sup> Other analysts predict global sales of electric vehicles to drop by 18%.<sup>11</sup> The projected decline in sales is due to a combination of automakers delaying production, the drop in gas prices, and consumers taking a wait-and-see approach to buying new models.<sup>12</sup> However, Wood Mackenzie still believes that the long-term outlook for electric vehicles remains positive, because of automakers' interest in climate-friendly vehicles.<sup>13</sup>

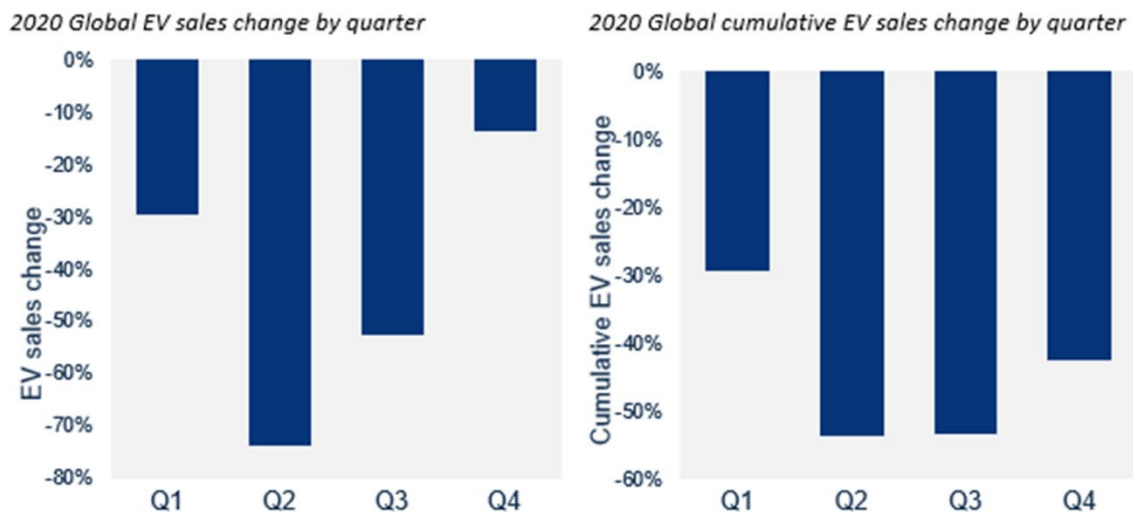


Figure 2. Global EV sales change projections Source: Wood Mackenzie

## Price Discrepancy between EVs and ICE Vehicles

Other experts are concerned about how the price discrepancy between electric vehicles and their internal combustion engine (ICE) counterparts will impact the electric vehicle market going forward.<sup>14</sup> For example, the Hyundai Kona starts at \$21,420 and the Kona Electric starts at \$38,310.<sup>15</sup> Some experts worry that with the drop in gas prices, it would take consumers too long to recoup the purchase price difference between ICE vehicles and electric vehicles for consumers to justify the purchase.<sup>16</sup>

## Consumer Confidence and Awareness

Regardless of the effects from the pandemic on electric vehicles, the industry will likely have to work to increase consumer confidence and awareness. According to the J.D. Power 2020 Q1 Mobility Confidence Index Study (the study), consumer confidence in electric vehicles is 55 on a 100-point scale.<sup>17</sup> Additionally, 70% of respondents said they have never been in an electric vehicle and 30% said they know nothing about them.<sup>18</sup> Based on the study results, Kristin Kolodge, executive director of driver interaction and human machine interface research at J.D. Power, said that automakers are “pushing forward with technology that consumers seem to have little interest in.”<sup>19</sup> The responses to the study have caused some to share a concern for automakers and a led them to believe that automakers may need to focus more on educating consumers about electric vehicles.<sup>20</sup>

## Positive Outlook

There are several factors that give analysts hope for a positive outlook for the electric vehicle market during and after the pandemic including: consumer views of the environment, evolution of electric vehicles, views that pandemic will cause only a delay in the electric vehicle market, and regional differences due to differences in regulations and policies.

## Views of the Environment

Some observers believe the post-pandemic outlook for electric vehicle sales will be unaffected or even improved from pre-pandemic levels. One reason the electric vehicle market could improve is due to the environmental effects seen during the pandemic resulting from the reduction in vehicle emissions. A fleet management company in the United Kingdom surveyed 200 people; 62 percent of respondents said they were considering buying or were committed to buying an electric vehicle after seeing how clean the air became during the COVID-19 lockdown.<sup>21</sup>

## Evolution of EVs and AVs

Another reason the electric vehicle market could improve is an outgrowth of the realities of living in a pandemic combined with the current trajectory for electric vehicles. The pandemic has accelerated research, sales, and use of autonomous vehicles, including electric self-driving cars.<sup>22 23</sup> In Las Vegas, autonomous vehicles are being used to deliver meals safely to vulnerable people.<sup>24</sup> With medical staff and employees being more in demand, autonomous electric vehicles are able to provide for the transportation of COVID-19 tests, which frees up medical personnel for other important tasks.<sup>25</sup> Furthermore, as online orders increase, more delivery vehicles are on the streets, including electric ones.<sup>26</sup> While the autonomous vehicle market currently is a mix of internal combustion, hybrid, and electric, the trend is expected to be toward electric.<sup>27 28</sup> Note that while this report is limited to passenger vehicles, there is also optimism for the electric truck market in the future.<sup>29</sup>

## Delay in Market Only

An alternative viewpoint is that the pandemic will not reverse the growth in electric vehicle sales but only delay the growth.<sup>30</sup> Some believe that electric vehicle sales could be cut in half in 2020 but are optimistic for the long-term growth of the sector. While many consumers purchase fewer fuel-efficient vehicles when gas prices are low, former Energy Secretary Ernest Moniz believes the decrease in electric vehicle sales will only be temporary. At least one electric vehicle manufacturer, General Motors, has stated its commitment to keeping up the momentum with its electric vehicle sales.<sup>31</sup> Furthermore, BloombergNEF projects that by 2040 electric vehicles will make up 58% of all new car sales.<sup>32</sup> Part of BloombergNEF's reasoning in predicting that electric vehicles will make up the majority of new car sales by 2040 is the fact that during the pandemic, global sales of ICE cars are on track to drop by 23%, while electric vehicles are on track to drop 18%.<sup>33</sup>

## Regional Differences

Finally, some geographic areas may have a positive outlook for the electric vehicle market, while others have a negative outlook. Some sources believe the impacts to the EV market will depend on the region.<sup>34</sup> For example, China and Europe could have minimal impact due to governmental investment and favorable regulations.<sup>35</sup> However, the United States may experience more of an impact, if federal regulations regarding emissions standards are reduced and oil prices remain low.

At least one state, Colorado, has outlined plans to increase the number of electric vehicles in the state, but the pandemic may require adjustments to the goals set out in the plan.<sup>36</sup> William Toor, executive director of the Colorado Energy Office, said the uncertainty of budget impacts from the pandemic could have an impact on the goals in the plan going forward.<sup>37</sup> However, Toor said the overarching goal of plan remains the same - to cut down pollution.<sup>38</sup>

Alabama is well positioned should the market expand. Mercedes-Benz U.S. International, with plants in Tuscaloosa and Bibb Counties,<sup>39</sup> has announced its intent to expand production of electric vehicles.<sup>40</sup>

## Acknowledgment

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