



# Monthly Sustainability Newsletter

## CHAIRMAN'S MESSAGE

December 2017, Vol. 1, Issue 11

Dear members, partners and friends,

It is my pleasure to introduce the December issue of the Monthly Sustainability Newsletter from the Al-Attiyah Foundation. In this issue we revisit Electric Vehicles.

Electric vehicles are gaining traction in light of recent announcements to ban petrol and diesel car sales in some European Countries by 2040. Despite the growing number of electric vehicles, their overall share of the automobile market remains negligible. However, this is forecast to change over the next few decades. Electric vehicles might reach competitiveness with internal combustion engine cars as soon as in the 2020s. Electric car statistics are expected to further improve with significant shares of car sales moving into the millions by 2030. To reach this goal, there are still many challenges to overcome such as the development of an adequate battery charging infrastructure and overcoming environmental and ethical issues in relation to the production of minerals that serve as basic components of electric cars. Compliance with the goals of the Paris Agreement requires even swifter action than currently predicted.

In addition to decarbonising the transport sector through the electrification of vehicles, reducing emissions from electricity generation—is equally as important if overall emissions are to be reduced - electric vehicles are only as clean as their power source. In this month's issue, we look at what is actually required in the transport sector to meet the targets of the Paris Agreement, the current share and status of electric vehicles, and the future outlook and challenges.

## Media Launch

### THE AL-ATTIYAH FOUNDATION LINKEDIN PAGE



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on LinkedIn**

## Upcoming Events

**Feb 27** CEO Roundtable Series 7

**May 7** 6th Annual Energy Awards

**May 8** The Al-Attiyah Foundation  
2018 Forum

## Important Announcement

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### CEO Roundtable Series 6

“Energy Efficiency”

Date: 27<sup>th</sup> February 2018

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## This Month's Highlights

**Implications of the Paris  
Accord**

**The Share and Status of  
Electric Vehicles**

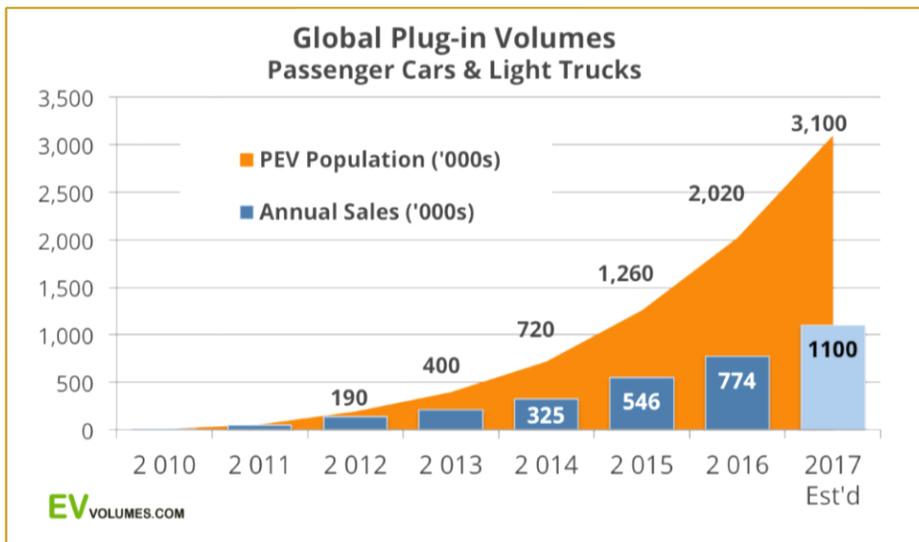
**Challenges and Risks**

**Future Outlook**

## Implications of the Paris Accord to the Transport Sector

The Paris Climate Accord set out the target of limiting global average temperature rises to well below 2°C or even 1.5°C. For this purpose, a balance between emissions and sinks - to pull greenhouse gases (GHGs) from the atmosphere - are targeted to be achieved in the second half of this century. According to research, meeting these targets requires a decarbonisation of the global energy system by around mid-century. But what does this mean exactly for the transportation sector? And where are we now? According to the Intergovernmental Panel on Climate Change (IPCC), the transport sector accounted for 14 percent of global GHG emissions in 2010. These emissions are largely linked to the combustion of petrol and diesel, as 95 percent of the energy used in the transport sector comes from these fuels.

In addition to switching to electric vehicles and green power generation, the transportation sector is also making efficiency improvements. Efficiency gains to date, such as reduced carbon quantities from manufacturing processes and electricity produced from more renewable sources, are substantial. But will never be enough to meet the Paris Agreement targets of course.



According to studies of the Climate Action Tracker, half of all passenger cars would need to be electrified by 2050 in order to be to keep emissions from rising more than the Paris Accord's 2°C target. To meet a lower emissions target of 1.5°C, action needs to be accelerated, almost all new vehicles should cause zero GHG emissions in 2050. With the average lifetime of a car being 15 years, the sale of cars with an internal combustion engine should cease by 2035. In addition, replacing the means of transport across the entire sector must take place for adherence to the 1.5°C target, as well as a reduction of the emissions from the freight transport. 1.5°C target implies that 25 percent of vehicles in 2020 should have zero-emissions increasing to 50 percent in 2030. But are these targets may already out of sight?

(Source: [www.iccgov.org](http://www.iccgov.org))

### EV Car Models

#### Toyota RAV4 EV



#### Toyota RAV4 EV

Range per charge 103 miles

Price\*\* \$50,610

Mentions\* on Social Media

87

Positive Sentiment of Mentions

24%

#### Nissan Leaf



#### Honda Fit EV

Range per charge 82-132 miles

Price\*\* \$37,415

Mentions\* on Social Media

54

Positive Sentiment of Mentions

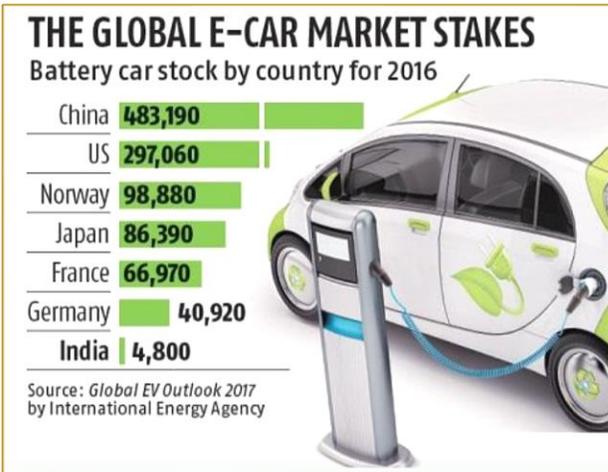
22%

Source: [www.cleantechniq.com](http://www.cleantechniq.com)

## The Share and Status of Electric Vehicles

The Global EV Outlook of the International Energy Agency provides an overview of the current status of electric vehicles. Accordingly, sales of electric vehicles reached a new record in 2016 with over 750,000 cars sold worldwide. As a result, the total number of electric vehicles on the road has now exceeded two million. However, this corresponds to less than 1 percent share of the one billion passenger cars in use today. In addition, the growth and use of electric vehicles is concentrated in a limited number of countries due to infrastructure investments required by a nation, as well as the comparative cost of the cars themselves

The primary cost for an electric car is the battery, which accounts for almost half the price of a mid-range car. Due to the cost of research, development and deployment (RD&D) as well as the emerging mass production of



electric vehicles, respective prices for batteries have declined considerably, while the performance of batteries has been improved coincidentally. Tesla and General Motors have even declared that the battery cost for their new electric car models is between USD 180 and 200 per kWh which is a drop of nearly 80% from prices ten years ago.

Moreover, charging infrastructure plays a crucial role for the proliferation of electric vehicles. In the future, the availability of publicly available chargers will be crucial to enable the management of electricity demand based on electricity supply. As mentioned above, although the number of electric cars is increasing, they are concentrated in a few countries. In fact, just ten countries accounted for 95 percent of global electric car sales in 2016: Canada, China,



France, Germany, Japan, Netherlands, Norway, Sweden, the UK and the US. This is mostly because of governmental backing though a wide array of policy options supporting the introduction of EVs and charging infrastructure in these countries. It is evident that the numbers are increasing substantially. However, the current share of electric cars remains almost negligible compared to the total amount of cars on the road.

(Source: [www.iccgov.org](http://www.iccgov.org))

### Tesla Model S



#### Tesla Model S

Range per charge 232-301 miles

Price\*\* \$62,400

Mentions\* on Social Media

49,967

Positive Sentiment of Mentions

39%

### Nissan Leaf



#### Nissan Leaf

Range per charge 73 miles

Price\*\* \$33,707

Mentions\* on Social Media

6,261

Positive Sentiment of Mentions

35%

Source: [www.cleantechniq.com](http://www.cleantechniq.com)

## Challenges and Risks

In order for electric vehicles to become mainstream and to significantly reduce the carbon footprint in the transport sector, the decarbonisation of the electricity sector is paramount. In addition, as more and more electric vehicles hit our roads there will be a substantial increase in demand for electricity. Thus, the charging of electric vehicles will have to be managed in a way to balance out supply and demand for electricity. In addition, the driving range and charging infrastructure needs improvement. The lack of charging facilities might represent a barrier for the penetration of electric vehicles in the car market, even if they have reached price parity with conventional cars. While the range of electric vehicles is already sufficient to satisfy the daily trips for most people and has improved to as much as 500 kilometres for new car models, concerns remain. Another major issue is the availability of necessary mineral resources for

inclusion in the batteries and the circumstances under which they are mined and extracted. It is estimated that the demand for lithium-ion batteries for electric cars will grow more



than 60 times from 2016 until 2030. Technologies for the electrification of heavy-duty vehicles, such as trucks and buses are not as advanced as they are for passenger vehicles. In addition, the electrification of airplanes and large ships seems to be less of an option today, requiring the utilisation of biofuels, efficiency improvements and other innovations

## Future Outlook

Electric vehicles are making unexpectedly fast progress, similar to the recent development of renewable energy technologies such as solar and wind power. The sales and total numbers are rising and the outlook is promising in most projections. However, in order to attain the targets of the Paris Agreement, an even faster penetration of electric cars in the transport sector is required, which is why governmental support and policies will be crucial in the short- to mid-term. It is crucial that the decarbonisation of the power and transport sector go hand in hand. Of course, social and environmental safeguards should ensure that the sourcing of materials required for the production of electric vehicles is sufficient to meet the demand, as well as being environmentally and ethically sound.

(Source: [www.ev-volumes.com](http://www.ev-volumes.com))

### Journal Reference

[https:// www.iccgov.org](https://www.iccgov.org)  
[https:// www.ev-volumes.com](https://www.ev-volumes.com)  
[http:// www.iea.com](http://www.iea.com)  
[http:// www.irena.org](http://www.irena.org)

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## BMW i3



### BMW i3

Range per charge 80-100 miles

Price\*\* \$41,350

Mentions\* on Social Media

1,448

Positive Sentiment of Mentions

38%

## Tesla Roadster



### Tesla Roadster

Range per charge 221-245 miles

Price\*\* \$109,000

Mentions\* on Social Media

297

Positive Sentiment of Mentions

17%

Source: [www.cleantechniq.com](http://www.cleantechniq.com)