



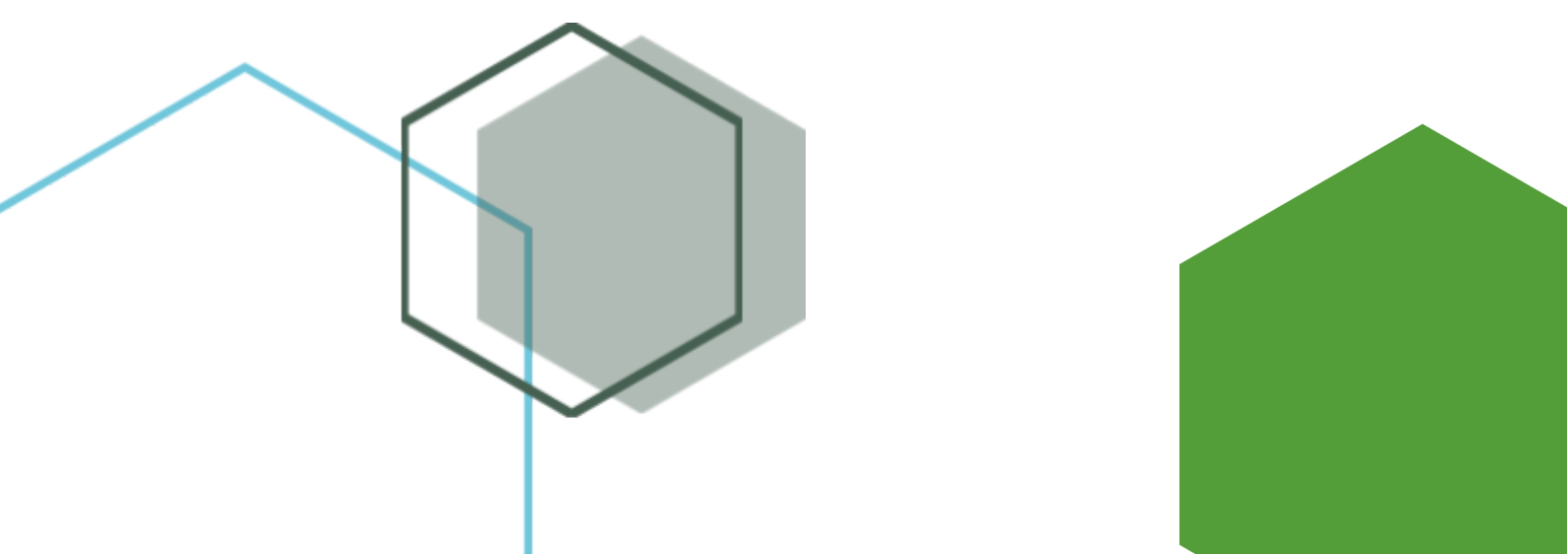
ELECTRIC VEHICLES IN THE EUROPEAN UNION

The new future?

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Policies of the European Union

"CO2 is the exhaling breath of our civilization, literally... Changing that pattern requires a scope, a scale, a speed of change that is beyond what we have done in the past." Al Gore



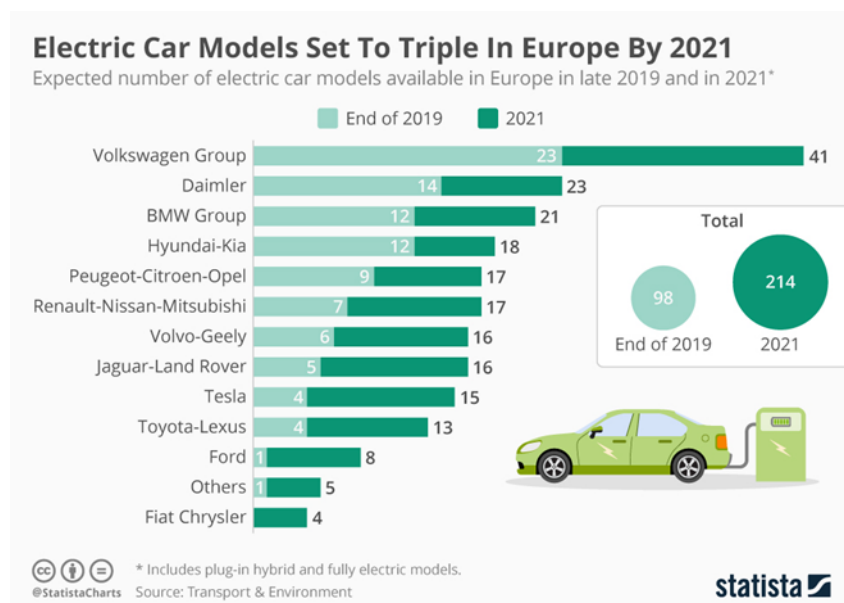
Executive Summary

- Electric vehicles are becoming indeed a new reality which requires from people willingness for change and drastic shift of cast of minds in order to protect our planet from polluting gases that are released in the air due to often car use (and not only that) that may cause some serious trouble if we continue to support the selling and buying of cars operating with fossil fuels.
- It is important to mention that Earth already faces unprecedented damage and the hourglass of time is ticking against us. Fortunately, the European Union has taken responsible action and has provided bills and legislation in cooperation with the member states, concerning the consolidation of electric vehicles in the European Green Deal framework for an environmentally neutral economy.
- In fact, the European Union has become the second electric vehicle market in the world accomplishing the 3,5% of EVs market share. Additionally, it has provided 1,8 million BEVs and PHEVs registrations before the latter months of 2019.
- European Union has also taken drastic measures in expanding the New Energy Vehicle mandate and mitigating the CO2 emission levels. Transport is one of the major factors, among the European Union, which have contributed to climate change and the rise of temperature.
- From the members states' perspective there has been noted considerable work and endeavor in encompassing EVs in their daily life and habits. Particularly, Norway holds the first place of leading the way in electromobility with 21% of BEVs in 2017.
- The public charging places that have been formed in countries of Western Europe such as the Netherlands, Germany, France and Norway surpass the 10.000.
- Thus far, 17 countries have already reported that they are aiming to implement 100% zero-emission vehicle goals or up to 2050. France, in December 2019, was the initial country of the member states to put this in effect through legislation, with a 2040-time limit.

What has the European Union actually done though to subdue the climate change through the installation of electric vehicle initiative?

First of all, it has set targets for a climate neutral economy by 2050, under the aid of the European Green Deal, which means no CO₂ emissions and boost the level of a healthy, clean and safe environment for all European citizens. It also embraces the

strategy which supports that all means of transport can surely aid in reducing the carbon consumption through policies that can be affordable and easy to adapt by all member states, in collaboration with the Commission.



Moreover, in order for the targets of climate neutral economy to be fulfilled by 2050, the total amount of new vehicles that are going

to be inserted in the market will be obliged to be ZEV after reaching 2040. This project requires from member states to arrange transition programs (from carbon to electricity) and methodical policies. The European Commission has also put legislations into action concerning "a socially equitable transition to clean, competitive and connected mobility for all", under the Europe in Motion framework of 2017.

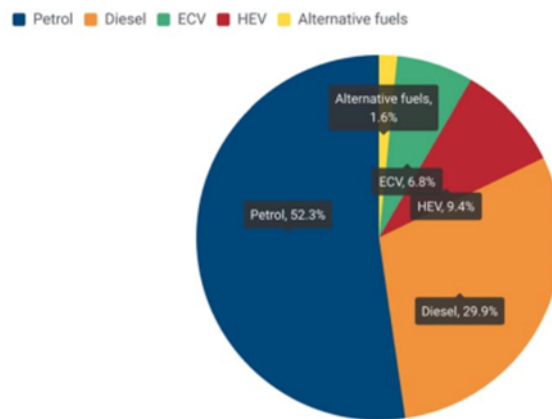
Additionally, it has emplaced the European Green Vehicles Initiative (EGVI) which is a "contractual Public Private Partnership (cPPP)". To be more specific, its goal is to combine the provision of EVs and solutions to problems concerning this subject and possible obstacles that may occur in the environmental, social and financial sector. It encompasses the "Smart, Green and Integrated Transport" which dedicates all its attention in building a truly competitive eco transportation market within the Union, offer transportation channels which cover the "green" demands.

This endeavor is underpinned by Horizon 2020 whose main branches are: 1) enhancing mobility 2) mitigation of traffic jams 3) boosting security through accomplishing number 2. Certainly, a point that has to be mentioned is the fact that EGVI has shown interest not only in decarbonizing cars but also buses and trucks with using alternative energy sources leading us under the "umbrella" of the

“Green Car Initiative”. Projects such as “AEROFLEX”, “ASSURED”, “SYS2WHEEL” under the Horizon 2020 orientation, are examples that include delivery vans, buses and trucks as well.

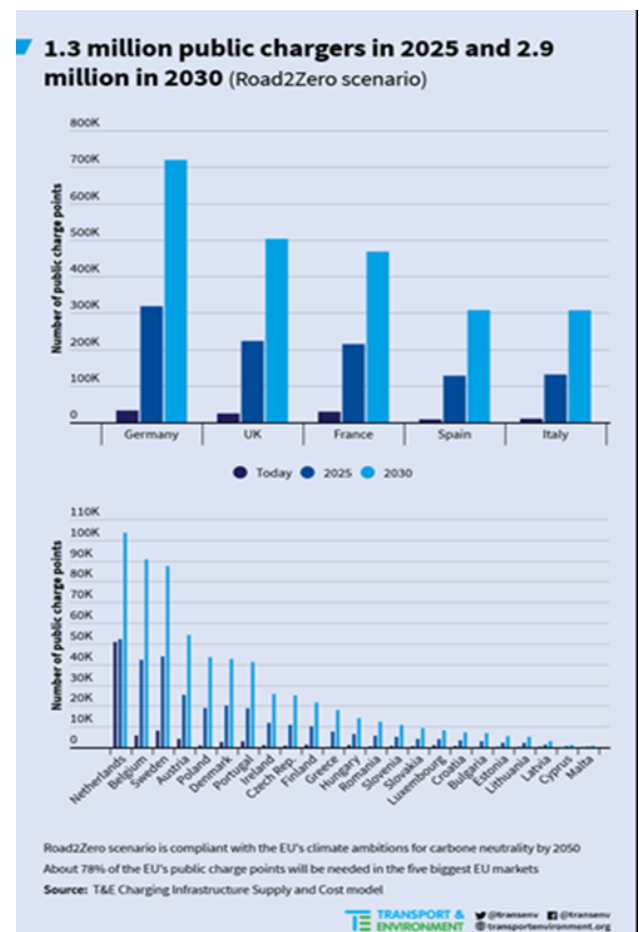
Equally important is that the EU has ratified a new fuel economy degree for passenger cars and vans within the 2021-2030 timeframe and at the same time CO2 emission levels limit. “In the European Union, 2020 is the target year for compliance with the CO2 emissions standards for light-duty vehicles of 95 grammes of CO2 per kilometer, which has contributed to the successful uptake of electric light-duty vehicles in Europe in recent years”.

Fuel types of new cars: petrol 52.3%, diesel 29.9%, electric 6.8% market share in first quarter of 2020



Specifically, as far as the Commission is concerned, it has put efforts in expanding the charging opportunity through charging stations installed in more building and at the same time dispose parking places with more than 10 parking spaces. Therefore EU, has significantly funded these visions and projects with 56 million euros under the “Green Vehicle Program”. Last but not least, a significant European institution the “European Environment Agency” and the European Association for Electromobility (AVERE) have pulled their own weight in collecting data about the CO2 emissions and supporting Commission’s actions of 2016 and 2018 about ‘European Strategy for low-emission mobility’ and ‘A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy’ respectively.

Member States level: which are the “greenest”? How well are they coping with electromobility?



According to the diagram and as a matter of fact, the member states show their strong willingness to become the new green behemoths and competitive players among the world's markets. This is a medium-term goal that soon is going to be accomplished.

More specifically, countries that have certainly proved their level of development are Finland, Sweden, Norway, Germany, France and the Netherlands. Two years ago, statistics showed really optimistic numbers concerning the share of BEVs and



PHEVs which increased among all EU 27 member states. The only exception was Malta. Precisely, the first places were conquered by Norway (56 %), Iceland (19 %), the Netherlands (16 %) and Sweden (12 %).

FINLAND

Finland, is a country of multiple means of transport including buses, trains, metros, cars, bikes and ferries. The highest percentage of preference is covered, paradoxically, by walking (36%). Public transportation comes second (33%) with buses being the most common way to move within the city of Helsinki. Responsible for coordinating this particular sector is Helsinki Region Transport (HSL). HSL arranges the charging places and plays a role of organizing the infrastructures made for this purpose. According to latest data, there are 48 electric buses available in Helsinki from three basic manufacturers (Linkker, Yutong Bus and VDL Bus & Coach). 13 more of them started operating during last year and 132 additional are expected to fully run within the upcoming months. In the course of the next years to come, buses are expected to almost double and charging spots as well. Thus far, 8 new charging locations can be recognized in the capital. The following diagram shows the benefits of electric buses and more specifically the reduction of CO₂ emissions, nitrogen oxides and particle matter.

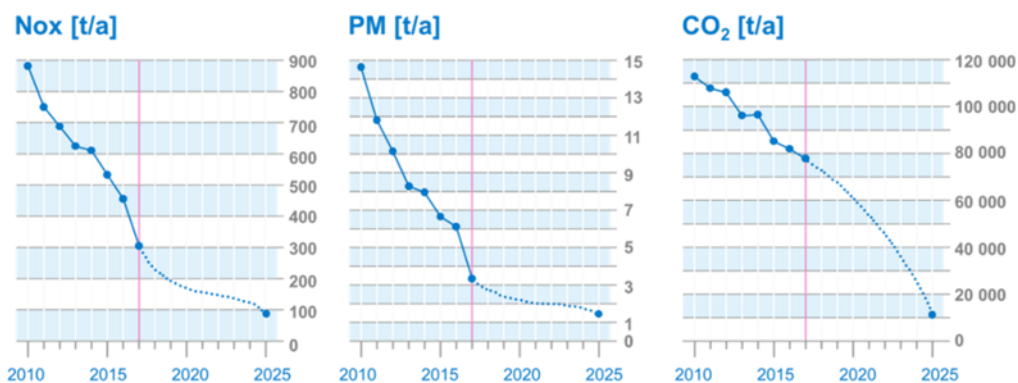


Figure 3. Emission estimate

THE NETHERLANDS

The Netherlands has accomplished having accessible charging locations, that transforms it into a thriving leading country in electromobility. The number of PHEVs has almost reached 10% during 2020 and the vision of the Dutch government is to conquer 25% in the next 5 years. Finishing up the charging network within the country they strongly believe that it is an actual way to accomplish their green dream. They base their policies in funding this network and at the same time educate their people about electromobility through state programs such as "National Charging Infrastructure Knowledge Platform Foundation" and Nederland Elektrisch. Moreover, they present EVs and their potential through global trade shows and concepts based on them. Notably, the Dutch government demands vehicles of zero emissions by 2030 blockading diesel and petrol.

Conclusion

Clearly, according to the data and the information described previously, someone can observe Europe as a certainly eco- friendly continent, with the ambition of implementing new laws and bills that are going to be a true helping hand to the restriction of climate crisis. Frontrunners of electromobility have proved the qualitative results of EVs not only for the environment but also for the society itself. What's more, the picture that mirrors the Union is the one of responsibility, hard work, organization and ambition towards a better future for its citizens. The latter ones can deposit their hopes and trust to European institutions and form the proper motivation to abide by laws and moreover, to gain the financial aid they need to make their country safer, healthier and more ecological than it was before, through the cooperation of national plans and visions and European legislation concerning the EVs.

Recommendations- The path towards wider progress

Although there has been remarkable progress in the field of electric vehicles, there is always room for development and further action. Obviously, the Union is proud of the achievements of some countries, but there is still a long way to go for the majority of member states to reach the Union's objectives. Specifically, there are countries such as Lithuania or Greece that are actually at a very early or even minimal stage of establishing the institution of electromobility in their everyday life and mentality. What can the Union do about such cases of countries?

- Initially, it would be beneficial to focus its attention on educating the national authorities with experts on the issue and more specifically explain about the infrastructure needed for the fulfilment of this effort, its cost, the benefits of EVs, how they will gradually enter the national market and finally in which way the member state can raise awareness about this topic to the general population.
- Afterwards, the Union could partly fund member states that lack financial prosperity, in order to implement the European legislation and be able to follow the programs it has set in action.
- In cooperation with the funding sector, supervision by Europe's bodies could also be really helpful, due to the fact that member states will gain the proper motivation to keep up with the pace of Europe and prove after all, that they are capable of adapting to the new reality.
- Last but not least, the European Environment Agency could contact with European car dealerships (Volkswagen, Opel etc.) across the Union and

discuss about the way through which several amounts of electric vehicles can be imported into the member state, presented to consumers via advertising and steadily start to be bought by them.

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