

5.1.4 Current State of Public Policies in Support of Electric Vehicles in Europe

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In this section, we will go over the range of public policies in support of electric vehicles. You will see that they are crucial to the success of electric vehicles in Europe. Like many innovations, electric vehicles need state support in order to find their economic model. This is the case during their launch phase because production costs are still high and impede their competitiveness compared to thermal vehicles. Today these are built by the millions in well-amortized factories, and to sum up, electric vehicles are more expensive because they are produced in smaller quantities. Therefore, it is the role of the state to address this structural weakness through active supporting policies. Once the market has matured, support is no longer needed and electric vehicles will stand on their own two feet.

Note that in Europe, the impetus comes as much from the European Union as from member states. This is what we will see in the first part. We will then see two particularly emblematic cases, France and Norway.

Public policies to support demand in Europe

Let us start from the beginning : in the end, what is the situation regarding public support for electric vehicles? On this point, we must first mention the decisive action of the European Union on the products offered by vehicle manufacturers. It is thanks to an ingenious system devised in the early 2000s that manufacturers such as Renault or Volkswagen are aware that they must bring the average CO₂ emissions of their sales below 95 grams of CO₂ by 2021, or else pay a hefty fine. This visibility has allowed them to adapt their production system. Be aware that 95 grams while SUVs are in fashion is not easy to achieve, and therefore their solution was to develop electric vehicles, as these emit 0 grams, which helps to lower the CO₂ average. We see that this European regulation on CO₂ led to the massive investment by manufacturers in electric vehicles.

In addition, the EU funds the deployment of charging corridors between member countries, as part of the TEN-T program.

Industrial research programs are also funded in order to help manufacturers meet these objectives.

However, offer does not necessarily mean demand, and this is where states come in, as in the European Union, many have understood this. Today, no less than 24 countries have implemented public policies to support demand for electric vehicles (Figure 5.12). These policies involve different mechanisms : subsidies for the purchase of cars and small commercial vehicles, subsidies for any other type of vehicle, favorable taxation for individuals, investment in networks of charging stations accessible to the public, aids for the purchase of private stations, favorable taxation for businesses, or use benefits. Each of the 24 countries that you see in the table of Figure 5.12 engages in at least one of these points.

	Subsidies for purchase EV and LCV	Subsidies for other vehicles	Favorable taxation for individuals	Investment in networks of charging stations accessible to the public	Aids for the purchase of private stations	Favorable taxation for businesses	Use benefits
Austria	x	x	x	x			
Belgium		x				x	
Croatia	x		x				
Cyprus	x	X	x				
Czech republic			x				
Denmark			x	x			x
Finland			x				
France	x	x	x	x	x	x	x
Germany	x		x	x	x	x	x
Greece			x				
Hungary	x			x			
Ireland			x		x	x	
Italy	x			x			
Latvia			x	x			
Liechtenstein	x						
Luxembourg	x		x			x	
Malta	x		x				
Norway	x		x			x	x
Netherlands			x	x	x	x	x
Portugal			x				
Romania	x		x				
Slovakia	x						
Spain	x	x	x	x	x		x
Sweden	x		x				x

FIGURE 5.12 – National public policies to support demand in Europe

The case of France

France is the first European market, let us look in more detail the mechanisms of this success.

Firstly, for vehicles, a comprehensive range of measures exists today, that I will describe in more detail.

The environmental bonus Since 2007, it is possible to benefit from a bonus on the purchase of an electric vehicle. This scheme is financed by a malus applied to the most polluting vehicles. Basically it is a polluter pays principle. The scheme has somewhat evolved since its launch in 2007. Indeed, the bonus went from 7 000 euros originally to 6300 euros at the end of last year, and 6 000 euros since 2017. There are of course criteria to be met : one must be an individual or a professional based or living in France, the vehicle must be new, it must be kept at least 6 months and have traveled 6 000 km before being sold, if it is rented, it must be for at least two years, and the bonus must not exceed 27% of the purchase price. Note that plug-in hybrid vehicles are also eligible, under the same conditions, but for a bonus of 1 000 euros.

The conversion premium In 2015, this bonus was complemented with a so-called conversion premium, which allows anyone who scraps a pre-2006 light vehicle to benefit from an additional 4 000 euros for the purchase of an electric vehicle and 2 500 euros for the purchase of a plug-in hybrid, all with exactly the same criteria.

L vehicles Since 2017, there is also a new bonus, for category L vehicles, motorcycles, scooters, tricycles, and quadricycles. They are entitled to a premium of

250 euros per kWh of on-board battery, capped at 1 000 euros. Here too there are criteria to be met, one must be an individual or a professional based in France, own the vehicle for at least one year, and have over 3 kW of engine power.

Electric-assisted bicycles Finally, electric-assisted bicycles also have their premium since February 2017, of 200 euros. The criteria are a capping at 20% of the purchase price of the vehicle, no cumulation with local subsidies, and there are a lot of them, and the bicycle must be owned at least one year. Are excluded from the scheme bicycles using lead batteries, vehicles with an average power greater than 3 kW, and individuals having already benefited from the subsidy.

All what we just described is financed by the malus on polluting vehicles.

But state support does not stop at this envelope, it also extends to business taxation. Actually, public authorities realized that it was costly for businesses to have an electric vehicle rather than a thermal vehicle. And it is unfortunate, as businesses make up a large part of new vehicle buyers. Therefore, a range of tax advantages has been implemented to help them.

Tax advantages for businesses Firstly, electric vehicles are exempt from corporate vehicle taxes, and businesses may have up to 30 000 euros of depreciation of the cost of a vehicle deducted from their corporate taxes, compared to only 18 300 euros for thermal vehicles. Note again that the cap is 20 300 euros for plug-in hybrids.

Air quality certificates One last benefit has been implemented on the vehicle itself, the air quality certificates. These vignettes, created by the Ministry of Environment make it possible to identify the level of pollution of the vehicle and the idea is to use this system to block access to city centers for the most polluting vehicles. Today, mayors have the power to create restricted traffic areas, as there are today in Paris and Grenoble, and they will use it through these vignettes.

As for recharging, the state also realized that action was needed, and implemented several solutions to facilitate the transition to electric vehicles.

Roads For roads, 60 million euros were made available as part of the PIA future investment program. The idea was to offer regional authorities financing of 30 to 50 percent of their station network projects, and it worked, as today over 20 000 recharging points are under development.

Furthermore, in August 2014, the state created a status of national operator for private projects. The principle is that if a company has a project in over two regions and that it ensures that the regional network is balanced it can be exempted from paying the occupancy charge of local authorities, which improves its business model.

Recharging infrastructures for individuals For individuals, support has also been implemented, and today, people can benefit from two things, a 30 percent tax credit on the cost of the vehicle purchased, and an aid of up to 50 percent of their installation if they live in collective housing. This assistance is called Advenir, and

it can go up to 1 660 euros if the station is shared. Furthermore, the two aids, tax credit and Advenir, can be combined.

In addition, the "right to a power outlet" has been implemented in 2014, one no longer has to ask permission from the co-owners to install a station in the common areas. If everything is paid for, they must just be informed in a general meeting.

Recharging infrastructures for businesses The same goes for businesses, they too may benefit from Advenir, up to 40 percent of their investment. Aid for professionals is limited to 1 660 euros if the station is accessible to the public.

Constructed buildings compatible with recharging stations Finally, the state decided to come see the future. Since 1 December 2017, all newly constructed buildings must be compatible with recharging stations. Basically, they must provide the ducts, cable trays and power reserves necessary for the future connection of charging stations. Pre-equipment rates vary according to buildings and parking types (Figure 5.13)

Parking capacity	Parking types				
	Housing	Tertiary sector	Industry	Public service	Commercial unit / cinema
≤ 40 spaces	50% of parking spaces	10% of parking spaces	10% of parking spaces	10% of parking spaces	5% of parking spaces
> 40 spaces	75% of parking spaces	20% of parking spaces	20% of parking spaces	20% of parking spaces	10% of parking spaces

FIGURE 5.13 – Target distribution of the electrical pre-equipment obligations of car parks in new buildings

12 January 2017 decree : harmonization of recharging Finally, and this is very important, a decree was issued on 12 January 2017 which lays down the rules essential to the harmonization of recharging in France. They include plug standards, station location, interoperability of stations accessible to the public, payment systems, installer qualification, all these topics are covered.

We can see that France is exemplary. But another country is coming to challenge us, Norway.

The case of Norway

Their volumes are lower, but electric vehicles account for no less than 13% of the market share in 2016, compared to 1.4% in France. So we wonder, how do they do it? Globally they do like us, their support mechanisms are even somewhat less developed. Basically, what is going on in Norway? 50% exoneration on corporate vehicle tax, which will become a subsidy in 2018, free urban tolls, tunnels and ferries, heavily used in these countries, elimination of customs duties, in a country where all vehicles are imported, free parking in car parks, permission to drive in bus lanes,

which is very interesting in big cities, but most importantly, exemption from vehicle taxation, including VAT, which over there is 25% on purchased cars, and purchase tax, which can go up to 10 000 euros. As a result, electric vehicles are much cheaper than thermal ones, and this works, we can see that it is a factor of success.

Conclusion

In conclusion, we see that electric vehicles are highly developed in Europe, and this is a success factor for markets.

This being said, it must be clarified that we went over national aids, but note that there are also many local aids, as well as supply aids and research support.