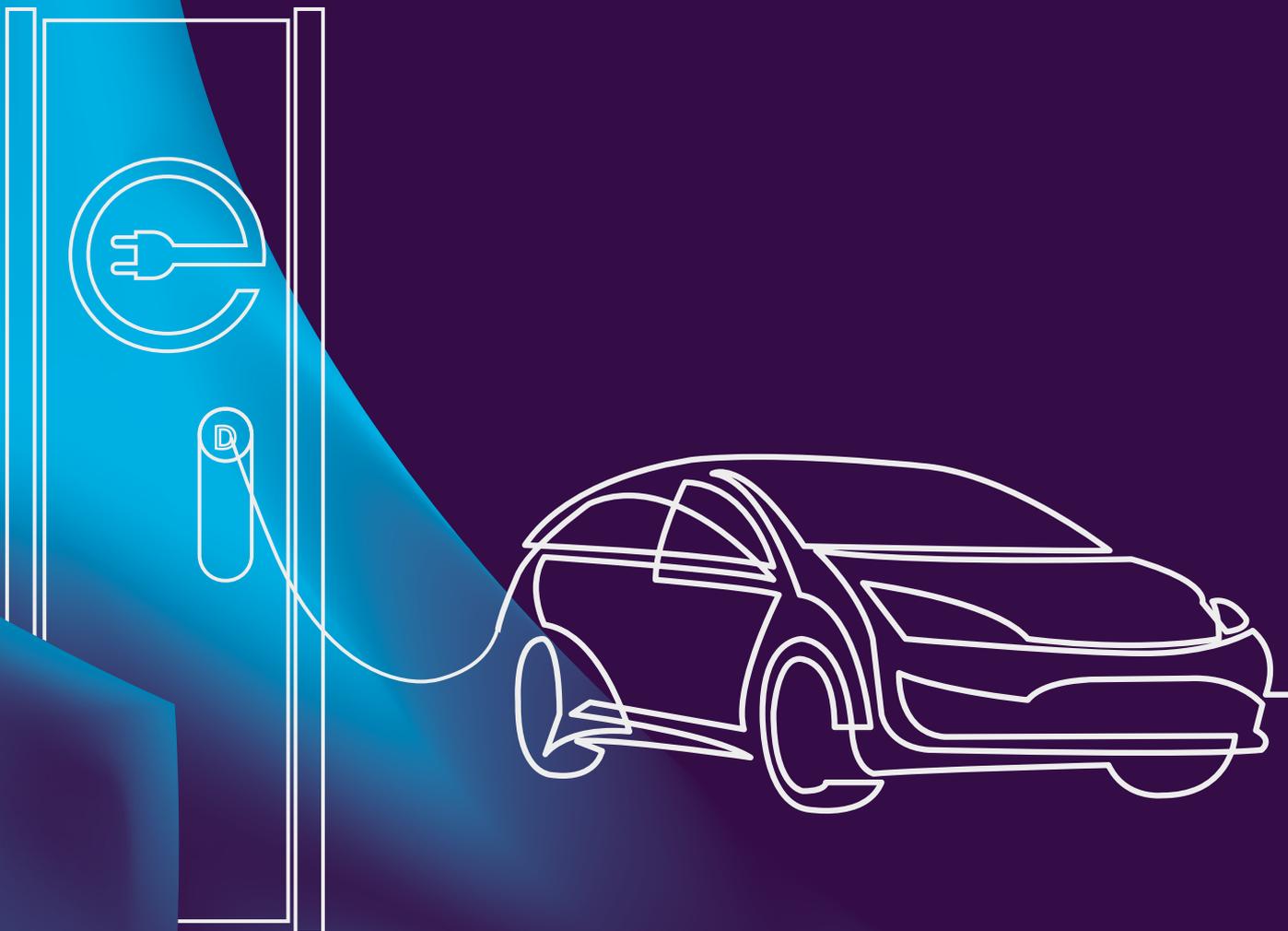


ELECTRIC VEHICLES IN BELGIUM

Charging towards the future



EXECUTIVE SUMMARY

This study provides a detailed overview of the EV ecosystem in Belgium while comparing it with other European countries. Furthermore, barriers that are slowing down EV adoption are identified and concrete solutions are proposed in order to increase EV uptake in Belgium. This report compiles our research and market insights, input from interviews with industry experts, as well as observations and lessons from Capgemini Invent's industry consulting experience.

Belgian EV ecosystem

- Compared to the other European countries analyzed in the study, Belgium shows the smallest increase of new EV registrations in recent years. Likewise, the evolution of a charging infrastructure over the last three years has largely remained stagnant, while many other European countries have gone the distance.
- The average annual growth in market share of EV registrations in Belgium over the past three years has been a mere 14.3%. In comparison, Germany and Luxembourg have both seen a growth of well over 40%, while the Netherlands has seen its EV registrations catapult to an astounding 174%.
- Brussels, despite its status as the Belgian and European capital, has a mere 23 fully public charging stations. As a comparison: London, Amsterdam, and Rotterdam each have installed thousands of public charging points.

Challenges and opportunities

- In most Belgian cities, little is being done by governmental and municipal agencies to help accelerate EV adoption by way of charging infrastructure. In the best case, they will facilitate installations by private enterprises. At worst, they will work towards banning cars from cities outright.
- The Belgian government has largely halted what few EV incentives they offered in the past. The purchase of an EV in Belgium is among the most expensive in Europe. In Belgium, a Tesla Model 3 is almost €15,000 more expensive than in Norway.
- Almost 53% of Belgian buyers find that taxes and subsidies for different types of fuel are so unclear that they would even reconsider buying an electric car.

Belgians are very interested in electrical vehicles. However, the utter lack of clear information is staggering. Neither the government, leasing companies, energy suppliers, or OEMs are providing potential EV drivers with the necessary information to assuage their worries and concerns.

Proposed approach and solutions

- Considering the very limited support of the government, if EV adoption is to accelerate in Belgium, the various players active in the EV ecosystem need to devise a clear path forward and collaborate where possible to align on the way forward.
- To overcome the challenge of the missing infrastructure, OEMs should form partnerships with charging point operators. A combined offering that would allow for a clear process to install a charging station after purchasing an EV would go a long way in reassuring reluctant customers.

It is absolutely essential for OEMs to come together and provide customers with clear information. Customers should be made aware of the financial implications, the existing and planned charging infrastructure, the various types of charging points and the offered driving range. Likewise, successful steps taken by other European countries provide a clear way forward for the Belgian government in facilitating the EV transformation.

EXECUTIVE SUMMARY	2
GLOSSARY	4
INTRODUCTION	5
THE BELGIAN EV ECOSYSTEM	6
Evolution of OEM EV offering	6
Sitting idly by: EV sales in Belgium and Europe	8
Public charging infrastructure	10
CHALLENGES AND OPPORTUNITIES	12
The infrastructure challenge	12
Government policy	14
Knowledge and public awareness	17
PROPOSED APPROACH AND SOLUTIONS	18
Vision and actions: the role of government	18
OEMs and charging infrastructure: an inseparable package	19
Ignorance breeds contempt: dealing with public awareness	20
Corporations and EVs: can they afford to do without?	21
EXPERT OPINION	22
CONCLUSION	23
REFERENCES	24
METHODOLOGY AND CONTACTS	25

GLOSSARY



BEV – Battery Electric Vehicle

Fully electric vehicles that use rechargeable battery packs and electric engines instead of **internal combustion engines (ICEs)**.



PHEV – Plug-in Hybrid Electric Vehicle

A hybrid electric vehicle that recharges its battery both by connecting it to an external source as well as by its in-car generator and engine.



FCEV – Fuel Cell Electric Vehicle

A fuel cell electric vehicle uses a fuel cell instead of a battery to power its on-board electric motor. Fuel cells in vehicles generate electricity to power the motor, mostly using oxygen from the air and compressed hydrogen.



Charging points

A charging point is an electricity outlet where only one EV can charge at a time. Usually, a charging station possesses two or more charging points. For this reason, we will specifically refer to charging points throughout this report.

Electric charging points are broken down into two types:



AC (Alternating Current)

AC charging points are usually called slow chargers and deliver from 3.7 kWh up to 22 kWh. Average charging time from 0%-100% - depending on battery size:

- 3.7 kWh: from 10-20 hours
- 7 kWh: from 5-10 hours
- 22 kWh: from 3-5 hours



DC (Direct Current)

DC charging points, mostly referred to as fast chargers, deliver charges from 50 kWh up to 350 kWh (20-30 mins for a full charge).

At the time of writing, prices for a charging point range from €600 for 3.7kW to around €1,500 for a charging point of 22kW.



INTRODUCTION

As the demand for alternatively powered cars grew by 44% across the EU at the end of 2019,¹ it became abundantly clear that the rise of electric vehicles (EVs) is a reality. This is due to a variety of reasons, not least among them a public consciousness around environmental issues. These issues continue to top the political agendas of both local and European government entities, and consumers are slowly galvanized towards making more environmentally conscious decisions. OEMs have no choice but to fully enter this rapidly growing ecosystem and invest in EVs.

Market acceptance of EVs varies greatly by size and maturity of the market, national and local incentives, as well as the regulatory environment in place. The EU is setting new targets of fleet-wide average emissions for OEMs in 2021. These forthcoming regulations pose a serious challenge to OEMs to add numerous electric models to their vehicle portfolio. OEMs are now massively producing new EVs. Indeed, as could be observed at the Brussels Motor Show 2020, many OEMs proudly exhibited their new electric models, while cars with an internal combustion engine (ICE) often remained in the background. According to industry analysts, the number of EV models available to European buyers in 2020 will almost double from less than 100 to 175.²

Nevertheless, the EV market penetration in Belgium, in comparison with other European countries such as the Netherlands is progressing much more slowly than expected, even with consumers showing a similar interest in EVs. To analyze this discrepancy, Capgemini Invent decided to conduct a study in order to provide a clear overview of the current EV-ecosystem in Belgium, and compare it with other European countries. The study will investigate the root causes of the discrepancy between Belgium and other countries to identify the barriers that are slowing down EV-adoption and the changing demands of end-users. Finally,

based on our industry research and market insights, we suggest solutions that will help overcome these barriers and increase the likelihood of EV-adoption in Belgium.

This report follows Capgemini Invent's late 2018 "Electric Cars: At the Tipping Point?" global study as well our 2019 Automotive & Mobility Study, which identified among its challenges the lack of EV adoption in Belgium. This study relies on our research and market data insights, interviews with industry experts, as well as observations from Capgemini Invent's own industry consulting experience

Note on COVID-19

Between the time of writing and the publication of this study, the COVID-19 crisis hit, and it continues to have a very significant effect on the EV ecosystem, and on the automotive and mobility market at large. Although operations are slowly resuming and frameworks are being put in place to deal with a potential second wave, the consequences of this crisis (among others, the large drop in oil prices) on the evolution of electric mobility is far from certain. Whether it merely creates a temporary hiatus in the evolution of EVs and then proceeds as predicted or whether consequences are more permanent, is unclear at this point. For a more in-depth look at the effect of COVID-19 on the automotive sector, please have a look at the "COVID-19 and the automotive consumer" study, published by the Capgemini Research Institute.³¹

THE BELGIAN EV ECOSYSTEM

Evolution of OEM EV offerings

Starting in 2009, the European Union has set mandatory rules regulating the emission reduction targets for new passenger vehicles. In 2021, the EU target of fleet-wide average emissions for OEMs will be 95g CO₂/km and heavy sanctions will be levied from those not complying with these regulations (€95/gram for each car that surpasses the designated target).³ According to research firm Jato Dynamics, the combined fines could reach as high as €33.6 billion in 2021 for European car manufacturers, based on the sum of averages of CO₂/km of the car manufacturers in 2018.⁴

These planned regulations have spurred OEMs to launch series of new electric models. For several years now, premium OEMs including Mercedes-Benz, BMW, Volvo, and Audi have been adding numerous models of plug-in hybrid electric vehicles (PHEVs) to their portfolio, often as a direct counterpart to their internal combustion engine (ICE) cars. More recently, however, OEMs have started to include more battery electric vehicles (BEVs) as well. Looking at the European market, a combined 60 different models (BEVs, PHEVs, and FCEVs) were available at the end of 2018. This continues to increase to a total of 175 models available in 2020 and 214 models are foreseen for 2021.² BEVs used to be in a higher price range, but car manufactures have been trying to bring down the cost and offer BEVs to a lower price range. As an example, Volkswagen announced its ID 3 model with a starting price of €30,000 and expects it to be among the best-selling EVs in the coming years. Likewise, Tesla released its more affordable Model 3, whose sales figures have soared throughout Europe. It was the best-selling car in the Netherlands in 2019, outperforming all its competitors, ICEs included.

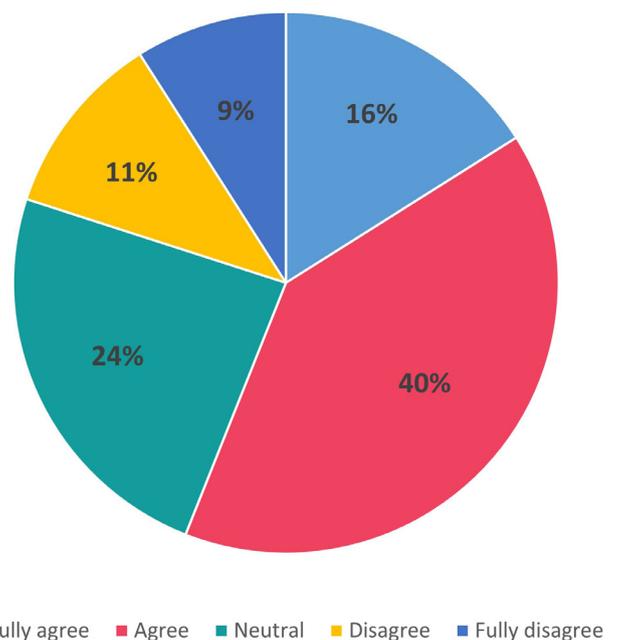
Renault has redesigned its flagship model ZOE and is working on a low-cost EV, its purchase price estimated at €24,000. Dacia, part of Renault, recently announced that it will launch a new BEV named the Urban City Car.⁵ This car will be sold for the estimated price of €15,000 and is likely to be available in 2021. In the coming years the price of EVs is expected to be brought down even further. Remarkably, OEMs are now working on entirely new EV segments as well. For example, Citroën recently announced its new two-passenger electric Ami model, which is marketed towards drivers who are 14 years and up, does not require a driver's license, and will sell for €7,000.

Note on COVID-19

According to a recent study by the Capgemini Research Institute, since the start of the COVID-19 crisis, in a reversal of their historical preference, younger consumers (<35 years of age) are now the largest segment considering buying a vehicle in 2020, mostly because it would allow for a better control of hygiene.³¹

Likewise, OEMs aren't sitting still. As an example, Citroën recently announced that they're advancing the sale of the Ami to May.²⁹

FIGURE 1: EV consumer preferences in Belgium – of all participants who want to buy a car, the question was asked if they would opt for an environmentally-friendly car.



Source: FEBIAC, 2019 (rounded figures)

Multiple studies have been conducted in Belgium regarding consumer demand for electric vehicles. FEBIAC, together with the University of Ghent, surveyed more than 2,000 people on their willingness to buy an electric vehicle and their motivation to do so. Another study, conducted recently by Powerdale in collaboration with the VUB, detailed the profile of Belgian EV-drivers. Both studies indicate that Belgians are keen on buying an eco-friendly car, on the condition that it doesn't cost them more. Fifty-six percent of the respondents indicated that their motivation to buy a more environmentally friendly car was due to a reduction of tax and genuine environmental concerns.⁶ However, 20% responded that having a less polluting car was not one of their principal concerns. Finally, almost 25% claimed that having a greener car was not even an option they considered.

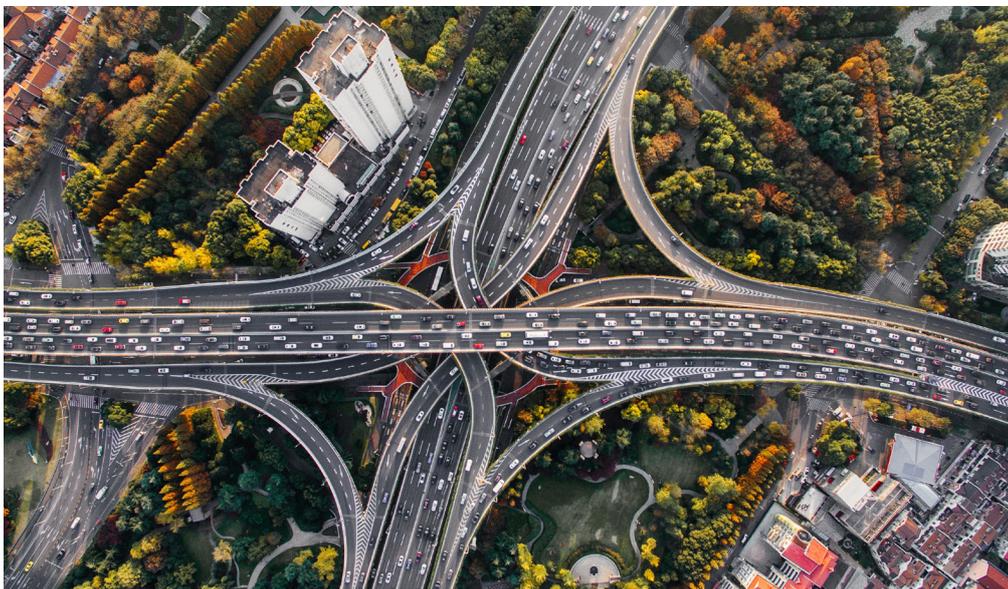
Overall, the price of an EV remains the largest impediment for consumers. In fact, only 20% agree to pay slightly more for an EV.⁶ This trend is particularly strong among young adults, aged between 18 and 24 years. Belgians that drive EVs are mainly male, are on average 46 years old, and drive around 90km per day.⁷ Furthermore, 83.5% of these EVs are company cars. However, 50% of them would buy the same car privately. The willingness of having a greener car is likely the main explanation for this sentiment.

The study also revealed that the driving range of the car is the most important criterion when buying an EV. Even though their driving habits do not reflect it (daily average of 40 km driving), most Belgians still expect a range of 320 km. Undoubtedly, this range anxiety is at least partially caused by the fact that Belgians like to use their cars to go on holidays

(younger people, however, have often tended to prefer other modes of transportation such as planes and trains to go on vacation). Young drivers are less demanding in this respect: 41% of them would be satisfied with less than 320km of autonomy.⁸ Also, 69% of young respondents use their EV as their family's main vehicle.

“As can be observed in the Netherlands, you can see the shift happening once there's a financial compensation. We shouldn't be naive. People are not only going to shift for environmental reasons. They need to be stimulated”

— Olivier François, Alphabet



Sitting idly by: EV sales across Belgium and Europe

On the European market, the Netherlands exhibits the fastest growth in terms of EV adoption. The number of newly registered EVs, in comparison to 2018, almost tripled in 2019, totaling more than 65,000 registrations.

Figure 2 shows the number of new electric vehicle registrations during of the last three years in Belgium compared to other European countries. The registrations are split up between BEVs and PHEVs.

European countries with a large population, such as France and Germany, have seen their EV registrations rise significantly, ranging from 67% to 97% respectively over the course of three years.⁹

In Belgium, however, the number of new EV registrations remained relatively stagnant from 2016 to 2018, hovering between 14,000 and 18,000 annual new EV registrations. A slight decrease in 2018 was even observed, largely due to the stricter fiscal measures imposed for hybrid vehicles at the start of 2018.²⁶ In 2019, a small increase was observed, amounting to almost 18,000 registrations, with a notable increase in BEV registrations. Uniquely in Europe, the proportion of registered PHEVs is higher than the registered BEVs.⁹

Compared to other European countries, Belgium clearly shows the smallest proportional increase in new EV registrations over the course of the last three years. While other countries have started going the distance, EV adoption in Belgium has remained relatively stagnant. In Norway, for example, more than half of the new car registrations are for EVs. The percentage of EVs in their passenger car fleet amounts to 11.5%. The Netherlands, ranking second best, has seen its percentage of EVs in their total car fleet reach 2.4% in 2019, noting an astounding average growth of almost 174% over the last three years. The share of new EV registrations has risen as high as 16.5%.⁹

Figure 3 shows the share of new EV registrations together with the respective share of EVs in the total passenger car fleet of each country.

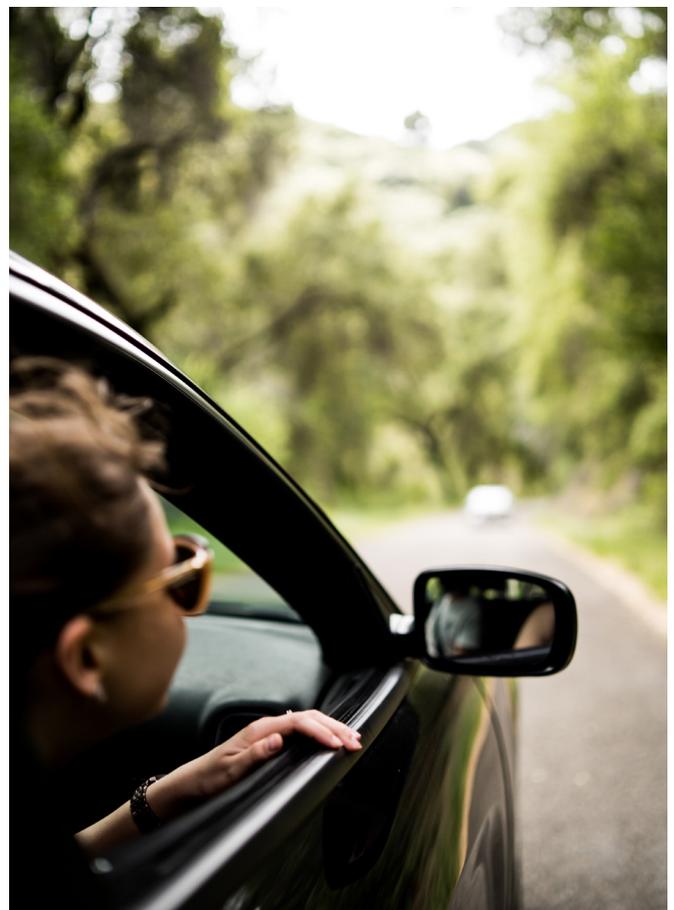
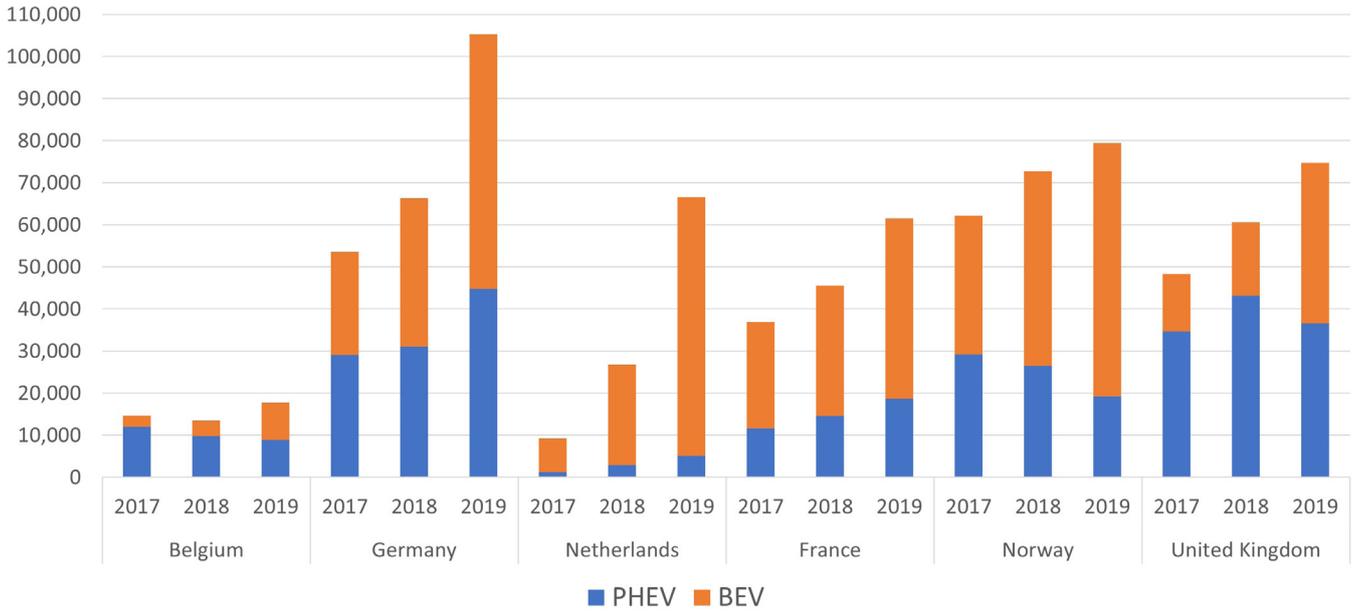
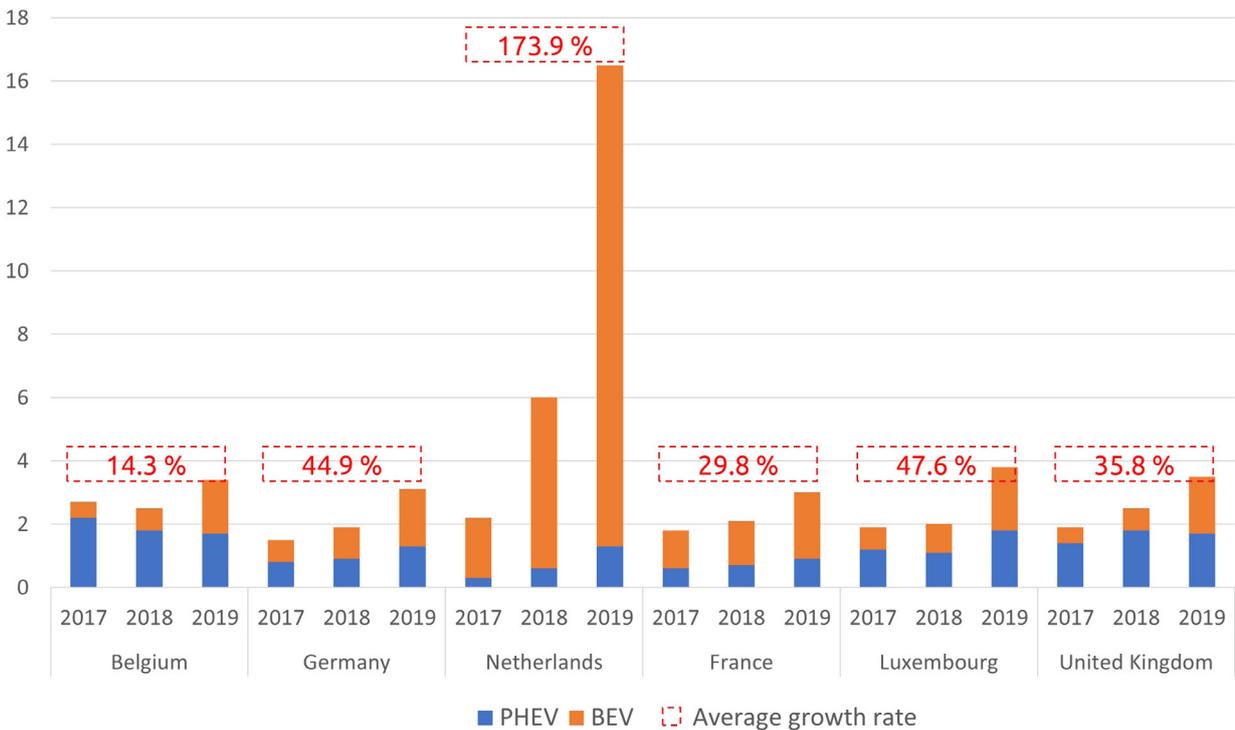


FIGURE 2: New EV registrations per country of 2017, 2018, and 2019.



Source: European Alternative Fuels Observatory (EAFO), 2019.

FIGURE 3: Share of new EV registrations (in %) among total fleet per country for 2017, 2018, and 2019.



Source: European Alternative Fuels Observatory (EAFO), 2019.

Public charging infrastructure

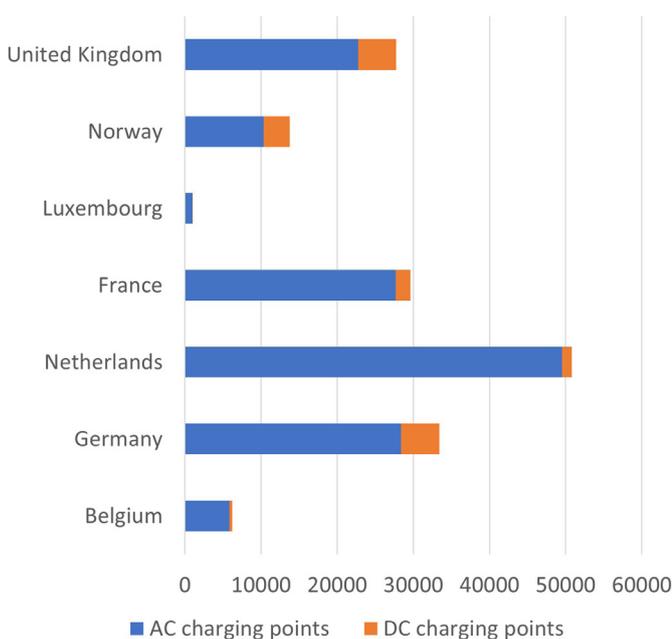
Even though most of the charging is done at home or at the workplace, the public charging infrastructure remains a crucial factor to facilitate the evolution of electromobility in a country. Especially in urban areas, where charging stations close to home are less common and generally more cumbersome to install, the presence of a public charging infrastructure is even more important. **Figures 4 and 5** show the absolute number of public and semi-public charging points (charging points that are not operating continuously and are not necessarily accessible to everyone, such as company parking lots) as well as the number of charging points per million people in various European countries.

The public charging infrastructure of European countries and regions varies greatly. The Netherlands has the largest amount of public charging points. Even when adjusted to the population, Norway, considered to be Europe’s most EV-friendly country, still ranks behind the Netherlands, although both have clearly put enormous effort in developing their public charging infrastructure. Interestingly, the share of (much more expensive) DC charging points in Norway is much higher than in other countries. When adjusting the amount of charging points to the size of the population, Luxembourg

reaches around 1,500 charging points per million population. At the end of 2016, Luxembourg launched Chargy, a government initiative, in order to develop an extensive public charging network in the country.¹⁰ Incidentally, it became the first country in the world to offer completely free public transportation to everyone.¹¹ Over the course of three years, the results are showing and Luxembourg has caught up significantly.

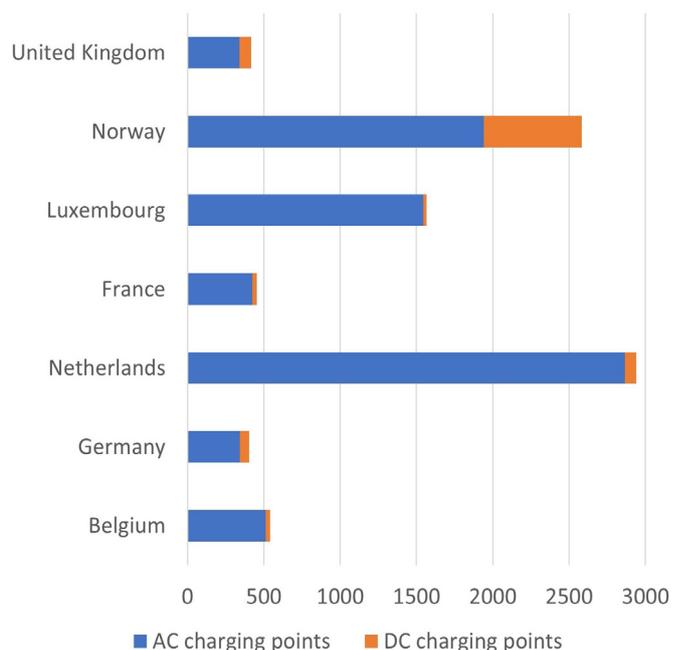
As of December 2019, Belgium had a total of 6,213 charging points (of which 353 are fast-chargers). This number includes semi-public charging points. As for fully accessible public charging points, the ratio for Belgium is around 500 charging points per million people, which is slightly higher than France and Germany. Correlating the current amount of EV registrations, there are on average 9.8 EVs per public charging point. In comparison, in Luxembourg and the Netherlands, these figures are 5.3 and 4.0 EVs per public charging point respectively, which is significantly lower than Belgium’s figure and suggests that these countries have a much more developed public charging infrastructure.

FIGURE 4: Public charging points per country in 2019



Source: European Alternative Fuels Observatory (EAFO), 2019.

FIGURE 5: Public charging points per million per country in 2019



Source: European Alternative Fuels Observatory (EAFO), 2019.

There are also notable discrepancies between different regions and cities in Belgium. Wallonia is lagging far behind Flanders in terms of charging infrastructure. Almost nine out of ten charging points in Belgium are located in Flanders. At the time of writing, Flanders has a total of 4,270 public and semi-public charging points (semi-public being charging points that are continuously accessible to the public, but not maintained by the government). In contrast, Wallonia only has 289 and the Brussels region 167.¹²

As for government initiatives, Antwerp, Flanders' largest city, has installed 69 fully public charging stations¹³ (including three fast chargers), while Brussels, despite its status as the Belgian and European capital, has a mere 23.¹⁴ As a comparison: London, Amsterdam, and Rotterdam have installed thousands of public charging points.^{27, 28}

Brussels, despite its status as the Belgian and European capital, has a mere 23 fully public charging stations. As a comparison: London, Amsterdam, and Rotterdam have installed thousands of public charging points.



CHALLENGES AND OPPORTUNITIES

The infrastructure challenge

Ensuring that there is always a place to recharge is a crucial element of the EV transformation. The process of charging an EV usually occurs in one of three ways: charging at home, at work, and on public territory. Even though the majority of charging is thought to be done at home or at work, a well-developed charging network is necessary. We distinguish charging points on public property (owned by the public authorities, open for collective use), on company/commercial premises (owned by the company/organization, sometimes made available to the public with certain limitations) and on private property (owned by consumers). The electrification of the Belgian public infrastructure to accommodate the rise of EVs also requires new and costly grid upgrades.¹⁵

Belgium is quite unique in the sense that more than 60% of its households have their own driveway, on which a private charging point could easily be installed. In the Netherlands, this is just 9%, yet its EV adoption rate is many times that of Belgium. Even though it provides more infrastructural options, this is clearly not a crucial factor in terms of enabling an EV transition. Yet, it could very well facilitate and complement an existing infrastructure once the transition has seriously commenced.

The role of companies in the EV adoption process is changing as well. Especially in Belgium, where company cars are much more prevalent than in other European countries, this provides for another facilitating entry-point. Evidently, companies cannot be expected to change their entire fleet overnight, nor are its employees ready for such a transition. But companies aren't sitting still, and many Belgian corporations have started offering alternative mobility plans to its employees, often including an option to switch to an eco-friendlier car. Younger job seekers are often more environmentally conscious and expect the same from their employers. Companies are also starting to realize that they cannot afford not to have at least a few charging points on their parking premises, if only to provide it as a basic service to visiting clients. In Flanders, the Cronos Group (Belgium's largest IT company) has set an example by starting to gradually transition their entire company fleet to electric cars. Today, they have around 200 fully electric vehicles and their

parking area offers 33 charging points, the largest charging area of its kind in Belgium.

Considering the public charging infrastructure, Belgium has a total of 6,429 public and semi-public charging points.⁹ Compared to the Netherlands, where this number is over 50,000, Belgium is clearly lagging behind and still has a long way to go. Furthermore, as mentioned in the previous chapter, there are major differences between the different regions. This unequal distribution of charging points is a consequence of specific mandates given to the regional governments, which means that they can establish mobility policies by themselves. In that regards, Flanders clearly took more initiatives than Wallonia. As an example, the Flemish government announced in December 2019, as part of the Clean Power for Transport plan, it has allocated funds to install a total of 614 charging stations by 2020.¹⁶ Most of these charging points will be installed on company parking lots.

Cities have the responsibility to provide public charging infrastructure in one way or another, since most people living in dense urban areas cannot easily charge at home. As there is no clear long-term vision coming from the federal government, cities mostly decide on their own what policies are being pushed forward. However, while it is their prerogative, in most Belgian cities, little is being done by governmental and municipal agencies to help accelerate EV adoption. In the best case, as is done by the city of Antwerp, they are facilitating installations by private enterprises. At worst, they're working towards banning all cars from cities outright, as Ghent has done by turning its city center into a pedestrian zone. This is certainly not helping the adoption of EVs in urban areas.

In the best case, cities are facilitating installations by private enterprises. At worst, they're working towards banning all cars from cities outright.

Belgium has no single source of information for the number of public and semi-public public charging points. In comparison, the Netherlands publishes an update every month on how many (semi-)public charging points have been added per region¹⁷. When Norway started building their national charging infrastructure in 2009—2010, a database was created to collect and document all public charging points. This database allows companies and organizations to build services, using the available data free of charge.¹⁸

As for OEMs, Tesla is so far the only one that has taken this issue seriously from the start. The company has opted to tackle this problem and provide a public charging infrastructure itself. So far, Tesla has installed over 500 so-called Superchargers across Europe (14 of which are in Belgium, with seven more planned), strategically located along major highways. This has allowed them to put their customers' minds at ease about long-distance traveling. When purchasing a Tesla, there is an option to purchase an accompanying home charging station as well. To this day, Tesla is the only OEM that has taken this approach, while other OEMs seem to be fully reliant on governments and charging point operators to solve this end of the business.

As the uptake of EVs will only increase within the coming years, charging of those EVs can pose a problem regarding the electrical distribution grid. Some estimates claim that there will be 1.5 million EVs on Belgian roads, and in 2040 this number could reach 4 million.¹⁵ This additional charging need is certainly an issue, as there are already evening peaks that are putting serious pressure on the grid. If the EV uptake increases and the current power grid is not upgraded and reinforced, an estimated 11% of the electricity grid of residential areas and business areas could be overloaded during evening peak hours.

“Comparing Belgium with the Netherlands, we’re five years behind, but it will not take five years to catch up with them.”

— Stefan Meers, EVBox



Government policy

In terms of stimulating EV sales, government incentives have proven most effective wherever they are enacted. These range from financial incentives such as the vehicle's purchase price and Value Added Tax (VAT) to non-financial incentives such as permitting EVs to use bus lanes. Implementations of such incentives have varied widely across Europe. There have generally been two approaches, which are sometimes applied in combination: either a reduction in costs for EVs (oftentimes temporarily) or an increase in costs for non-EVs.

Overall, price remains the biggest obstacle preventing customers from purchasing an EV. Raising taxes (or reducing tax discounts) for non-EVs is popular with governments, but doesn't necessarily translate into a changed mindset. On the other hand, reducing tax rates for EVs, if done on a temporary basis (often very publicly communicated to urge buyers on), will certainly boost sales. This will, however, usually stagnate down the road as incentives are mostly effective only as long as they are available.

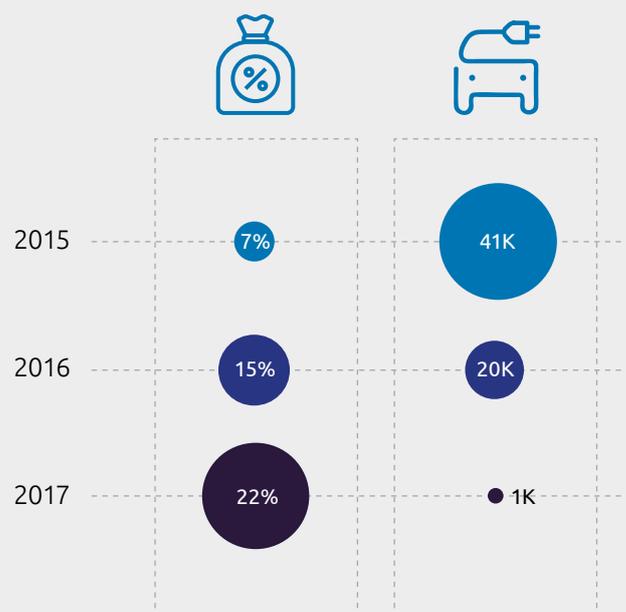
As an example, in 2016 the Dutch government increased the 7% tax rate for PHEVs to 15% and then to 22% in 2017.¹⁹ This resulted in a very substantial increase in new PHEV registrations in the years 2014 to 2016, peaking in 2015 with more than 41,000 new registrations.⁹ This amount more than halved in 2016, and in 2017 it dropped massively to a mere 1,184 registrations. The same strategy was employed in 2019 for BEVs, a year in which Dutch sales figures of BEVs soared to the highest in Europe. As from 2020, the Dutch government has doubled the tax on the list price of BEVs from 4% to 8% (for ICE cars, the standard tax rate of 22% remains in place), and will gradually keep increasing it until 2026,¹⁹ when it will have caught up with the ICE tax rate. Indeed, in the first months of 2020, the rate of new EV registrations dropped to a third of the 2019 average. Perhaps to compensate, the Dutch government announced that it will start offering a premium of €4,000 for every EV purchased (including, as the first country to do so, €2,000 for second-hand EVs).²⁰

In Belgium, a Tesla Model 3 is almost €15,000 more expensive than in Norway.

Overall, price remains the biggest obstacle preventing customers from purchasing an electric vehicle.

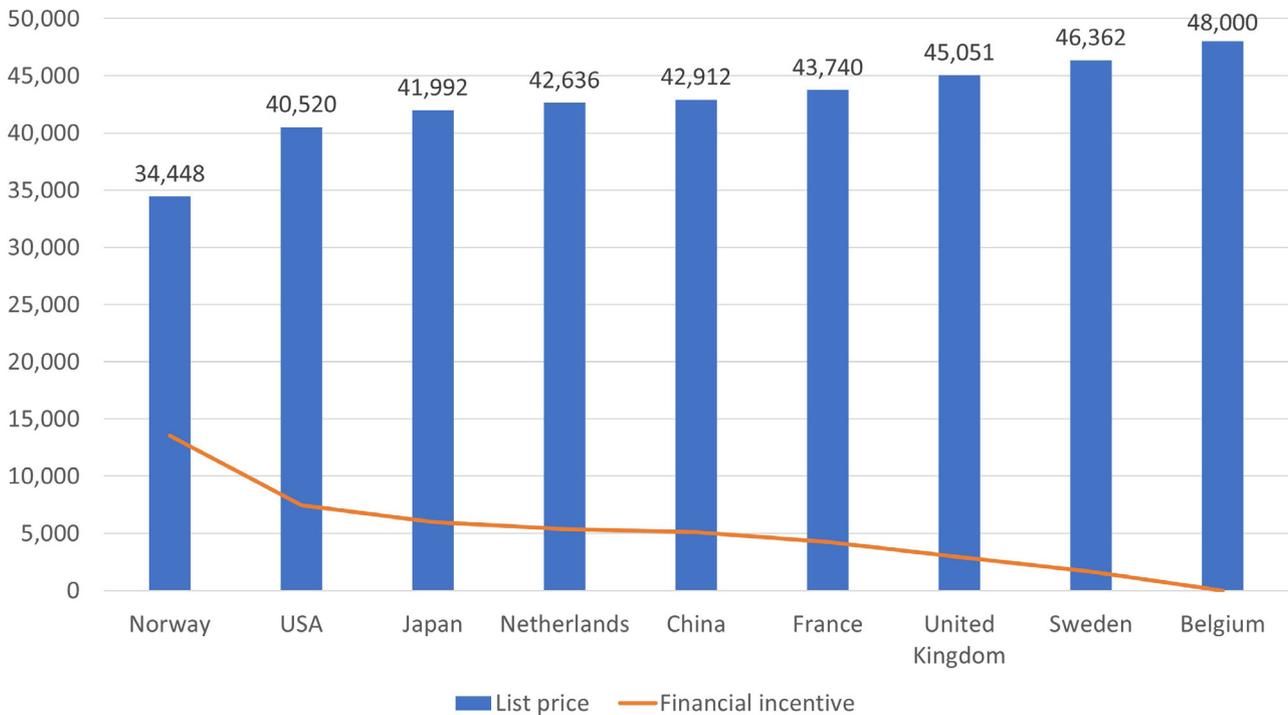
In Flanders, up until the end of 2019, the purchase of a BEV could benefit from a premium of up to €4,000. However, this was scrapped in 2020 and there are currently no premiums offered at all.²¹ In 2019, companies could deduct 120% of their expenses for emission-free cars.⁹ In 2020, this was decreased to 100% (not a significant difference with ICE vehicles, which range from 40—100% based on their level of emissions). Flemish residents who own an EV are also exempt from paying road taxes, while EV owners in Brussels and Wallonia have to pay the minimum ownership tax of €77.35 for fully electric cars.⁹

FIGURE 6: Dutch government initiatives for PHEVs: Tax rate compared to PHEV registrations from 2015 to 2017



Source: European Alternative Fuels Observatory (EAFO)

FIGURE 7: Purchase price (in €) of a Tesla Model 3 per country



Source: International Council on Clean Transportation (ICCT), 2019

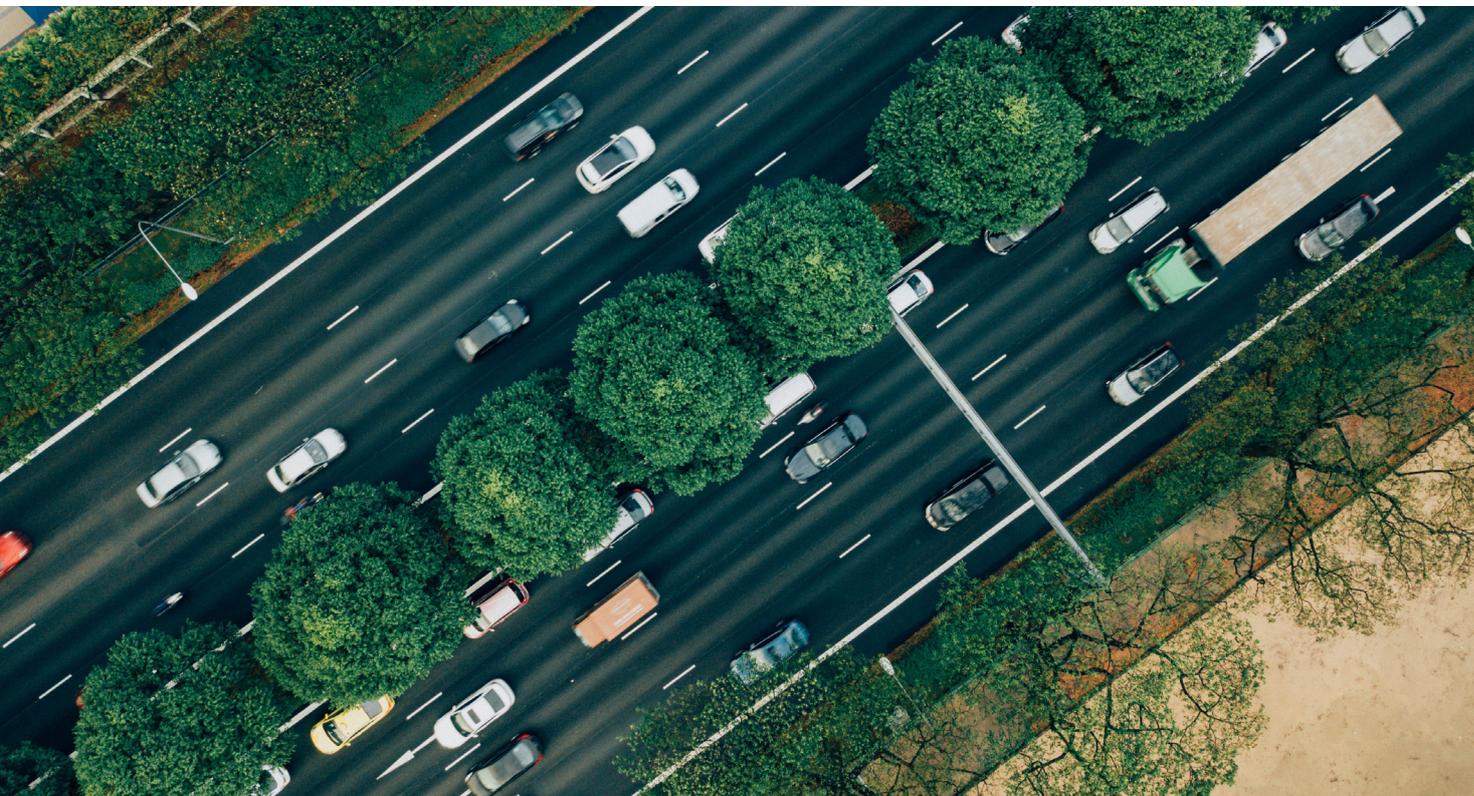
In terms of premiums when purchasing an EV, Norway is most ambitious in that regard, waiving the VAT when buying an EV as well as lowering the vehicle registration costs.⁹ **Figure 7**, taking the Tesla Model 3 as a typical example, outlines the impact of different government incentives offered to EV drivers in cities in Europe and around the world on the purchasing price. New EV owners across Europe received wild-ranging government incentives to help them buy an electric vehicle. Residents from Oslo and Bergen top the list: they receive more than €14,300. Flanders (Belgium) tails the ranking with €0, making it the most expensive region in Europe to buy a Tesla Model 3.²²

Furthermore, there are a whole slew of additional incentives that can be offered to boost EV adoption. Once again, Norway leads the way. Norwegian EV drivers don't pay annual road tax, get access to bus lanes, enjoy reduced parking and ferry fees and don't pay any import taxes.⁹

While relatively easy to implement, these public-friendly incentives can go a long way to help harmonize the transition to EVs. Belgium offers almost none of those incentives.

Many politicians publicly hail the advent of electric vehicles but are reluctant to make any concrete implementations that are consistent with this narrative.

In Belgium's convoluted political landscape, there is also a notable dichotomy between the offered narrative and the implemented steps. Many politicians publicly hail the advent of electric vehicles but are reluctant to make any concrete implementations that are consistent with this narrative. On the one hand, there is a concerted push to switch to more environmentally friendly cars or at least advocate to do so. When looking at the infrastructural changes executed by some cities, however, it is clear that some major cities are taking steps to bully drivers out of using personal vehicles. Clearly, for many politicians, the agenda is to get rid of all cars, whether they pollute or not. While some parties can claim to fulfill the wishes of their electorate, they will rarely proclaim these intentions explicitly. This inconsistency of narrative and action contributes to a lot of the confusion that is present among the car-driving public.



As an example, the Brussels Capital-Region has committed to banning all ICE cars by 2035, with diesel cars already being banned from 2030 on.²³ According to Alain Maron (environmental minister, Ecolo), this is part of the plan to make Brussels climate neutral by 2050. Surely an ambitious plan, and over the past five years, the city has been implementing a plan to free the city center from traffic by creating what will be Europe's largest pedestrian zone. However, EV adoption is clearly not on their agenda to achieve this transition. Indeed, in terms of infrastructure to support a transition to electric vehicles, close to nothing has been done.¹⁴

Similarly, Antwerp has set up an ambitious roadmap with the 'Routeplan 2030' project. The idea is to reduce the number of cars by 50% by 2030, to be replaced by other modes of transportation²⁴ (note the use of "cars," including, presumably, EVs). Their attitude towards EVs is a reactive one. The attitude is defined by the eponymous "Paal volgt wagen" (charging point follows car) strategy. No proactive steps are taken, and the focus is on other modes of transportation.

Because of Belgium's intricate political structure, there is the additional challenge of coordination between the federal,

regional, and communal entities. Municipalities can decide to follow or ignore national directives and install whatever infrastructure they see fit. However, the situation is changing as more and more municipalities are forming associations in order to better follow and coordinate the directives and guidelines given by the regional authorities.

While both Brussels and Antwerp have set up elaborate environmental transportation roadmaps, eco-friendly EVs barely figure in these plans.

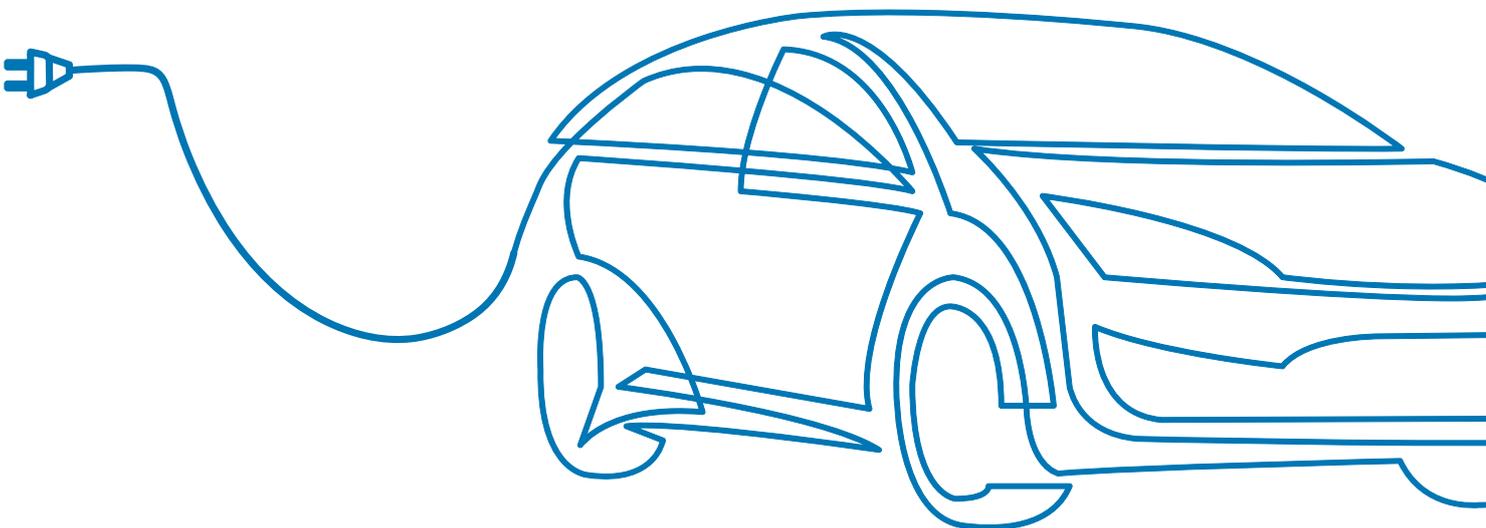
Knowledge and public awareness

It is not only the lack of clarity about taxes and subsidies that makes people hesitant to buy an electric car. It is also the lack of general information, such as the difference between the various models, charging points, the types of electric cars, batteries, and the different available ranges. This is obviously a major element that negatively impacts consumers' willingness to buy an EV.

According to a recent study by FEBIAC, almost 53% of Belgian buyers find that taxes and subsidies for different types of fuel are unclear, nor how they are evolving, to the point where they would even reconsider buying a car. The study also highlights the differences between regions. In Wallonia, almost 70% hesitate for this reason. In Flanders and in Brussels, it is close to 48% of the population.⁶

Additionally, until now, dealers often encouraged customers to choose ICE cars rather than electric cars, partly because the margins on the sale and maintenance of ICE cars are higher, but also because dealers themselves lacked essential information to be able to advise customers accordingly.²⁵ If a customer buys an EV, problems can arise because there is no single source of information or services to support the use of that car - for example, when it comes to servicing home charging equipment, it is not always clear who is responsible for what.

Almost 53% of Belgian buyers find that taxes and subsidies for different types of fuel are so unclear that they would even reconsider buying a car.



PROPOSED APPROACH AND SOLUTIONS

Vision and actions: the role of government

All too often, governmental agencies are unclear about their attitude towards EVs and its related infrastructure. Most of the public has no clear view on what their options are. In order to resolve this, the government needs to put forward and communicate a clear and coherent vision.

In terms of serious initiatives to advance an EV agenda, it is fair to say that government entities in Belgium are not doing much or lack the ambition compared to other European countries and cities. The Flemish government has expressed the ambition to install at least one charging point in each city by 2020. In comparison, the Dutch provinces of North Holland, Utrecht, and Flevoland have committed to installing 20,000 new charging points just in 2020. Elsewhere in Europe, similar initiatives are enacted.

If the Belgian government is both clear and serious about its EV aspirations, it needs to be consequent with its vision when it comes to the charging infrastructure. Cities should be both allowed and encouraged to develop their EV ecosystem and

the appropriate budgets should be allocated to make it a reality. Companies involved in the EV industry should be put at ease about planned policies and resources.

Likewise, government incentives in various European countries have shown to have a very significant impact on EV adoption. These range from diminished taxes on EV purchases, outright electric vehicle subsidies to free or discounted parking and toll roads. If both the economic framework and the available infrastructure are available, the EV adoption rate is almost guaranteed to accelerate.

Considering the limited amount of support offered by the various governmental organizations, both in terms of financial incentives and raising public awareness, it is incumbent upon the various players in the market to devise a coordinated EV-adoption strategy for Belgium.

Likewise, some leasing companies are willing but find it difficult to put their existent business models at risk. EV technology is evolving rapidly and may be drastically

FIGURE 8: Effective government incentives to stimulate EV adoption



devalued by the time it is sold in a post-leasing structure. One solution would be to come up with new revenue models, which inherently would entail a transformation of this industry. Hence, the leasing industry is following the developments on the market and is not in a hurry to undertake initiatives.

Hence, if EV adoption is to accelerate in Belgium, the various players active in the automotive ecosystem need to devise a clear path forward and come together where possible to align on the way forward.

OEMs and charging infrastructure: an inseparable package

Customers will not buy electric vehicles without the necessary charging infrastructure in place. The OEMs, if they are to successfully sell EVs, need to find creative ways to enable their potential clients to recharge.

Tesla has, since its inception, opted to install and manage its own charging infrastructure. While it is a very costly endeavor, it has allowed them to put future customers at ease about the possible range and potential charging shortcomings. For now, Tesla is the only OEM to have taken this approach, while other automakers struggle with an unhelpful government, a lacking infrastructure, and a public that is unaware of the intricacies of the EV ecosystem.

The evolution towards a comprehensive EV strategy has clearly vested itself in the plans of most automakers. However, almost the entire budget is allocated towards design and marketing in their HQs, with little to spend on local sales strategies and public awareness, let alone equip their dealers with what is necessary to commercialize the transformation. Without a clear approach towards making the EV a viable buying option for the customer, the entire transformation towards EV is seriously hindered.

Short of installing the infrastructure themselves, to overcome the challenge of the missing infrastructure, OEMs should form partnerships with charging point operators, who face similar challenges from another angle. These companies have extensive know-how of the infrastructure opportunities and can both advise and collaborate with OEMs on a coherent and all-encompassing sales approach towards the client. A combined offering that would allow for a clear process to install a charging station after purchasing an EV (e.g. a personal charging station at a reduced price - whether it be on public or private property) would go a long way in reassuring reluctant customers. Some leasing companies

and distributors have started to take concrete steps in this direction. As an example, leasing company Alphabet offers a full solution, including a process to install a home charging station as well as a charging card, which takes away the complexity for the customers when opting for an EV. Likewise, D'Ieteren Auto offers customers charging solutions via its Electric by D'Ieteren (EDI) subsidiary.³²

Going forward, to deal with the challenge of grid overload as a result of larger numbers of vehicles charging simultaneously, various solutions have already been proposed and implemented. Adapted tariff structures, charging time spreads, as well as incentivizing customers to charge at night have all proven effective ways to significantly mitigate these concerns. As an example, the city of Amsterdam provides less electrical current through its charging points during the evening hours to lessen the load on the electricity grid. Energy suppliers are also expected to adapt the electrical grid according to the changing needs.

Short of installing the infrastructure themselves, to overcome the challenge of the missing infrastructure, OEMs should form partnerships with charging point operators, who face similar challenges.

Ignorance breeds contempt: dealing with public awareness

As the research has shown, large segments of the Belgian public are uninformed about EVs as well as the challenges and opportunities they offer. Neither government agencies nor OEMs have exerted particular effort to disseminate relevant information. The acceptance of and support for EVs requires an understanding on how EVs can become a part of everyday life. In the early phase of EV adoption in Belgium, before these requirements are met, awareness-raising activities should be a priority for authorities.

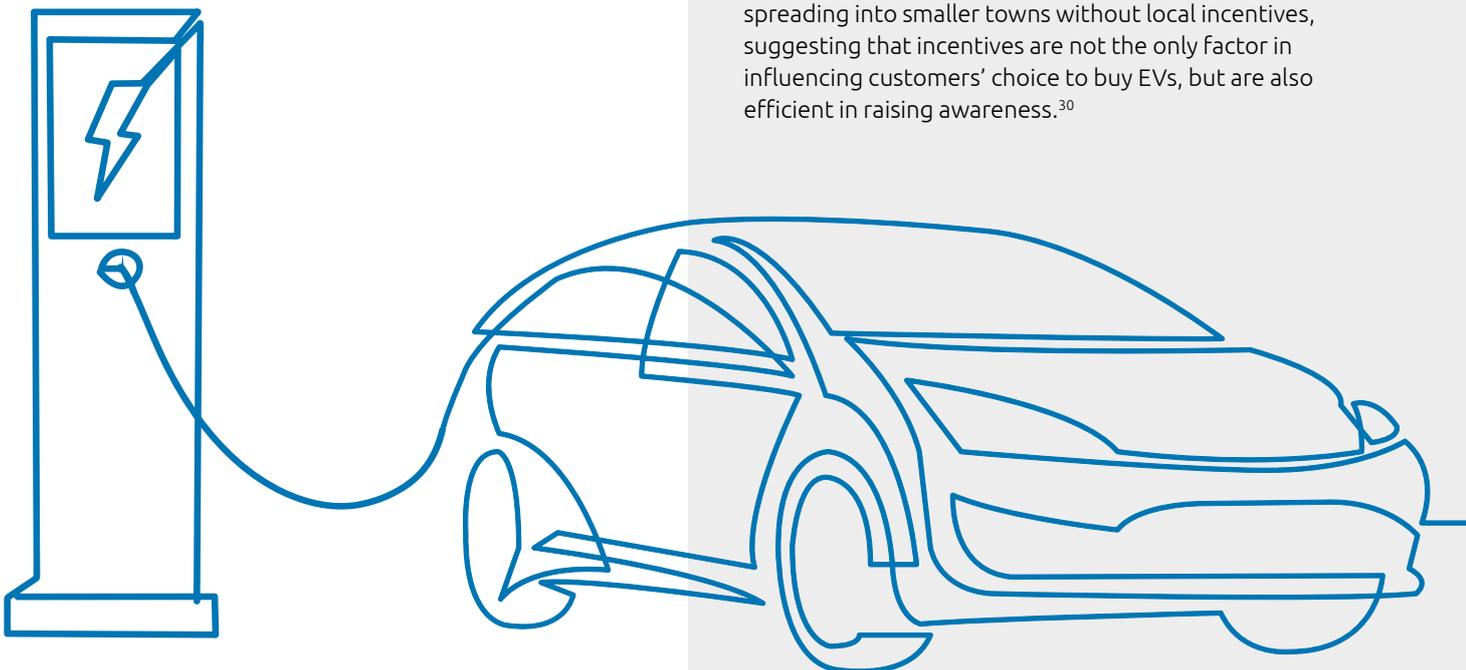
If the transformation to EVs is to succeed, it is essential for OEMs to come together and provide potential customers with clear information. Customers should be made aware of the financial implications, the existing and planned charging infrastructure, the various types of charging points and the offered driving range. Likewise, authorities can be part of the solution by having a positive attitude towards the EV industry and publicly supporting it, as well as clearly communicating the incentives when they are offered.

A concise and unified message towards potential customers will, at a relatively low cost, go a long way towards convincing the public, let alone putting minds at rest, about the consequences of the purchase of an electric vehicle

If the transformation to EVs is to succeed, it is absolutely essential for OEMs to come together and provide potential customers with clear information.

Norway example – best practices

In Norway for example, both politicians and the media have projected a positive attitude towards EVs. Because of this, public awareness and support evolved from allowing to test and experiment with EVs, the development of the EV industry in Norway, to eventually supporting the climate policy targets.³⁰ Equally, Norway implemented various local incentives, such as free toll roads and free bus lanes. These seemed to work, especially with EV owners who live and work in areas where these local incentives can be taken advantage of. However, the EV market is also spreading into smaller towns without local incentives, suggesting that incentives are not the only factor in influencing customers' choice to buy EVs, but are also efficient in raising awareness.³⁰



Corporations and EVs: can they afford to do without?

Corporations, on the other hand, have largely realized the inevitable transformation and some have already taken active steps in that direction, both for their own employees and towards clients.

With an eye on the recruitment of young, more environmentally conscious employees, large companies cannot but include the option of EVs in their car fleets. While it is a gradual transformation, corporations can simply no longer ignore the societal and market tendencies. To attract young and talented employees, it is essential for companies to outline a clear EV policy and be consistent going forward. As a bonus, in Brussels, taxes for office parking space (up to €75) are waived for companies that install charging points on their premises. Concerning the challenges of grid overload on company premises, energy companies can accommodate the transition and it should not pose a major challenge.

Finally, no modern company parking area of any firm of repute should be without at least some charging points for clients. As the EV adoption increases, a dedicated charging point or station on any corporate parking lot will be viewed not merely as a necessity, but as a minimum. By offering the EV infrastructure and facilitating EV charging on their premises, companies can demonstrate their willingness to facilitate new ways of working and help transform the automotive ecosystem towards the future.

With an eye on the recruitment of young, more environmentally conscious employees, large companies cannot but include the option of EVs in their car fleets.



Expert opinion: towards an accelerating EV adoption



Guillaume Roudil
Head Of Manufacturing,
Automotive & Life Sciences
Capgemini Invent Belux



Jonathan Schick
Head Of Mobility
Capgemini Invent Belux

Jonathan: Most experts agree that electric vehicles have become an inseparable part of the automotive landscape and will start to dominate car sales figures more and more within the coming years. Our clients in the automotive and mobility sector, especially OEMs, are all adamant about this change and their readiness to embrace it.

Guillaume: OEMs have started ramping up their production of new EV series and models. However, there is one important element missing. While they have pumped large amounts of money on the production and manufacturing end, they seem to be doing the bare minimum when it comes to the crucial side of sales and distribution, which is proving to be a serious bottleneck that is impeding both sales and adoption. Dealers and wholesale distributors are mostly left to their own devices to convince customers to switch to an EV as well as answer for the lack of infrastructure and information. If OEMs are serious about pushing EV models to the market, they will have to reckon with the entire EV ecosystem, from production to the charging infrastructure.

Jonathan: OEMs still rely on governments and other players in the market to deliver an adequate charging infrastructure to their customers. In countries where governments are fully on board, such as Norway or the Netherlands, this dynamic is working. However, when they aren't, the whole sales process seems to fall apart. Belgium is a good example. While the Belgian government at best tolerates a modest EV adoption, it has done very little in terms of installing a decent network of charging points, especially in comparison with other European countries. For potential Belgian customers, this has resulted in a lot of unfamiliarity and a general reluctance to switch to EVs.

Guillaume: Perhaps it is too late for OEMs to still undertake large moves into the charging infrastructure market. However, it is imperative that they form strong partnerships with other players who will provide the missing ingredients. OEMs, leasing companies, smart city providers and dealers are well aware that their business models will drastically change in the coming years and they should dare to widen their horizon and create new partnerships and ventures. The reason Tesla was so successful was largely in part due to their anticipation of the need for an entire ecosystem. If other OEMs don't want to keep losing ground, they will be obliged to come up with their own solutions, whatever form they may take.

Jonathan: As corporations are starting to take individual steps in transforming their fleet to a more environmentally friendly one, OEMs and leasing companies will have no choice but to adapt to the changing demands of the client. At the same time, corporations are contemplating introducing new transportation models, whereby employees could choose to use alternative modes of transportation. Coupled with new business models such as full-service packages with flexible subscriptions, OEMs and leasing companies could leverage this new environment and evolution to align their EV initiatives and come up with new business models to adapt to this transforming ecosystem.

Guillaume: As with all fast-moving markets, sitting on the sidelines means being pushed slowly out of it. The government could be a big help. If they are to keep up with the demand of the market, however, OEMs and other automotive players cannot afford the wait and will have to take new initiatives. This means forging new partnerships to cover the entire EV ecosystem, adapting their existing business models and providing dealers and end users with all the necessary information. This alone will ensure that customers will follow OEMs with the same enthusiasm into the EV transformation.

CONCLUSION

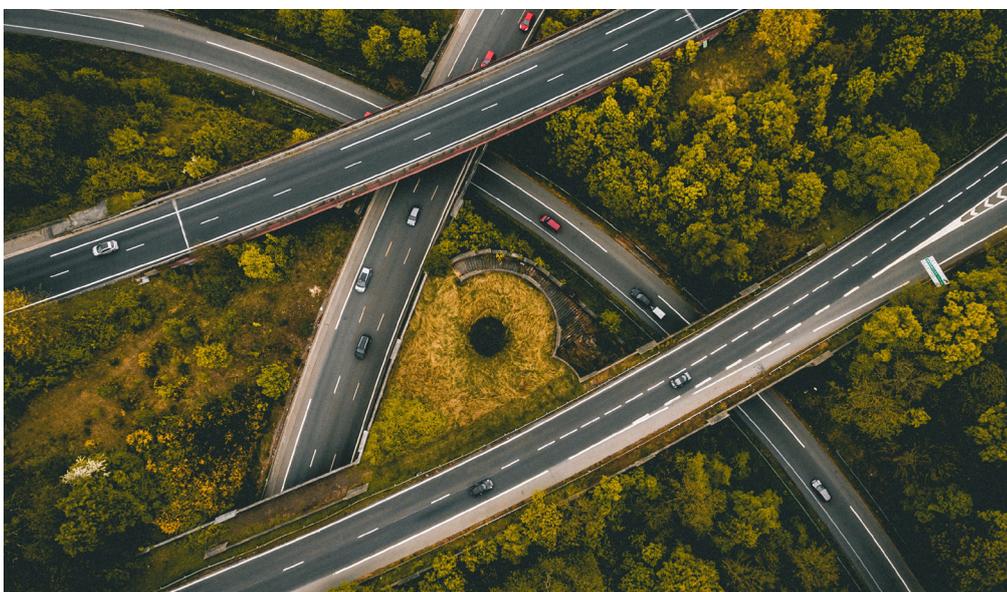
Although our extensive research indicates the various reasons that Belgium lags behind other countries in terms of EV adoption, it also highlights the multiple avenues of exciting opportunities.

Compared to other European countries, especially the Netherlands, Belgium scores quite low. The reasons, as outlined, are manifold. A clear, coherent vision and consequent steps from the government, as the Dutch case has shown, can exponentially accelerate this transformation. So far, this has been absent. This also explains the glaring discrepancy with other countries when it comes to the charging infrastructure, a most necessary element to assimilate this transformation. Therefore, OEMs cannot sufficiently rely on government initiatives and it is incumbent upon them to take active steps to realize their EV ambitions in Belgium.

In reality, Belgium possesses a very fertile soil on which electric vehicles could flourish. Its disproportionate number of private driveways and its optimal fiscal framework for company cars offer a very opportune platform to stimulate a forward-looking EV transformation. With OEMs and its partners devising comprehensive strategies to facilitate the

development of the entire EV ecosystem, potentially helped by a more willing political class, Belgium could potentially not only keep up with other countries on the continent, but perhaps even aspire to become an example for the rest of Europe.

Belgium could potentially not only keep up with other countries on the continent, but perhaps even aspire to become an example for the rest of Europe.



REFERENCES

- 1: EV-Volumes, “Global BEV & PHEV Sales for 2019,” March 2020
- 2: Transport & Environment, “Electric Surge, Carmakers’ electric car plans across Europe 2019—2025,” July 2019
- 3: European Commission, “setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC),” April 2019
- 4: JATO Dynamics, “2021 CO2 targets would generate €34 billion euros in penalty payments within Europe,” April 2019
- 5: InsideEVs, “Renault confirms affordable Dacia EV Will Arrive in 2021—2022,” February 2020
- 6: FEBIAC, “Een op zes autokopers stelt aankoop uit door onduidelijke fiscaliteit,” June 2019
- 7: Vrije Universiteit Brussel for Powerdale, “Meet the Belgian e-driver,” October 2019
- 8: L’Echo, “44% des Belges estiment que l’État doit installer des bornes électriques,” January 2020
- 9: European Alternative Fuels Observatory, 2019
- 10: Government of Luxembourg, November 2019
- 11: Mobilitészentral, “Free Transport,” March 2020
- 12: Omgeving Vlaanderen, “Steeds meer publieke laadpunten voor elektrische wagens,” March 2020
- 13: Antwerp Open Data, updated 2020
- 14: Charge.brussels, updated 2020
- 15: Baringa study for Synergid, “Future impact of EVs on the Belgian electricity network,” November 2019
- 16: Vroom, “Vlaanderen financiert 600 laadpalen op bedrijfsterreinen,” December 2019
- 17: Netherlands Enterprise Agency, “Statistics Electric Vehicles and Charging in The Netherlands up to and including January 2020,” Jan 2020 (published monthly)
- 18: NOBIL, <http://info.nobil.no>, updated daily since 2012
- 19: Vereniging Zakelijke Rijders (Union of Professional Drivers), “Bijtelling 2017—2020,” 2019
- 20: TNW, “The Netherlands will give citizens up to \$4,400 for buying new electric vehicles,” February 2020
- 21: The Brussels Times, “Flanders ends grant for electric cars,” December 2019
- 22: International Council on Clean Transportation, “Electric vehicle capitals: Showing the path to mainstream market,” November 2019
- 23: Brussels Capital Region, “Energie-Klimaatplan 2030 – The right energy for your Region,” October 2019
- 24: Vervoerregio Antwerpen, <https://routeplan2030.be>, “Een mobiliteitsplan voor de toekomst in de Antwerpse regio”
- 25: Capgemini Invent, “Electric Cars: At the Tipping Point?,” November 2018
- 26: De Tijd: “Verkoop hybride auto’s sputtert,” May 2018
- 27: Rijksdienst voor Ondernemend Nederland, May 2020
- 28: Government of London, March 2020
- 29: Citroën, May 2020
- 30: Norwegian Centre for Transport Research, “E-vehicle policies and incentives - assessment and recommendations,” 2015
- 31: Capgemini Research Institute, “Covid-19 and the automotive consumer’ study,” April 2020
- 32: Electric by D’Ieteren (EDI), January 2019

METHODOLOGY AND CONTACTS

Methodology

This study aligns with previous studies by Capgemini Invent (notably, Capgemini Invent's 'Electric Cars: At the Tipping Point?' study and our 2019 Automotive & Mobility Study) and adds timely research on the Belgian and European EV ecosystem. We leveraged unique market insights from our own industry consulting experience, held interviews with automotive and mobility experts, and capitalized on the latest research and trends.

Acknowledgements

Special thanks to Koen Kennis, Dirk Vermeiren, Stefan Meers, Olivier François, Marc Vandenberg, Michel Martens, Laurent Willaert, and Jan Foulon for their input to this study.

Much gratitude to Anneleen Wauterickx and the IDEAN team, Biplab Haldar, Chetan Dattaram Mali, Adrien Clarebout, and Eléonore Rime for their contribution and efforts throughout the creation of this study.

Contacts

Robert van der Eijk

Managing Director & Executive VP
Capgemini Invent Belux
robert.van.der.eijk@capgemini.com

Guillaume Roudil

Head of Manufacturing, Automotive & Life Sciences
Capgemini Invent Belux
guillaume.roudil@capgemini.com

Jonathan Schick

Head of Mobility
Capgemini Invent Belux
jonathan.schick@capgemini.com

Carlos de Moura Cortes

Head of Automotive & Customer Engagement
Capgemini Invent Belux
carlos.de.moura.cortes@capgemini.com

Victor Donck

Mobility Consultant
Capgemini Invent Belux
victor.donck@capgemini.com

About

Capgemini Invent

As the digital innovation, consulting and transformation brand of the Capgemini Group, Capgemini Invent helps CxOs envision and build what's next for their organizations. Located in more than 30 offices and 10 creative studios around the world, its 6,000+ strong team combines strategy, technology, data science and creative design with deep industry expertise and insights, to develop new digital solutions and business models of the future.

Capgemini Invent is an integral part of Capgemini, a global leader in consulting, technology services and digital transformation. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. Today, it is a multicultural company of 270,000 team members in almost 50 countries. With Altran, the Group reported 2019 combined revenues of €17billion. People matter, results count.

Learn more about us at

www.capgemini.com/invent