Renault, pioneer of the electric car : is this a real competitive advantage?

by

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Overview

In 2009, Renault may have seemed to be taking a considerable risk when it launched its electric vehicle programme. Nearly ten years later, market signals, changes in technology, as well as environmental pressure and consumer taste have justified this strategy. The programme has even changed direction, accelerating production in order to benefit from its situation as a corporate 'first mover' (in other words, a company making inroads into a new market) and its new status as a major sector within the Renault Group in terms of volume and profitability. As Renault is writing this new chapter in its history, it is interesting to reflect on the choices it made and the initial lessons which were learned. We will discuss how quickly the market will now progress and under what conditions; and whether new rival companies will catch up with the trailblazers who fully intend to remain leaders in their sector.

Report by Florence Berthezène • Translation by Rachel Marlin

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The electric vehicle sector has reached a critical moment. When Renault entered this sector between 2011 and 2013, it was one of a small number of manufacturers who had made this highly anticipated choice. Others arrived later, as the Koreans did last year. It would appear to be an opportune time to assess the situation before embarking on the second phase of this adventure.

The current picture

Even though we have hindsight, there are still a number of questions and uncertainties, and this calls for us to be extremely cautious.

A small and dynamic market

Over the past five or six years, the global market has been growing by about 50% every year. This growth should continue during 2018. China is edging ahead and the United States is showing a tendency to fall behind. Europe is situated between the two. Pessimists would say that it is easy to grow when one starts so far behind. We tend to be more optimistic, seeing that the market is growing very quickly, and that there is true potential: the greater the variety of the market, the greater is the likelihood that different uses and practices will develop. In the areas and sectors where the offer is structured and where the ecosystem is stable, it is possible to take more than a 10% market share. Norway is an example of this situation where 24% of all vehicles sold in 2017 were 100% electric. Since the beginning of this year, this rate has now reached 30%. In France, electric vehicles do not cover all the segments of the market however, in segment B (which covers versatile urban cars, including the Renault models ZOE and Clio), they represented 12% last year, and this will increase this year.

Having sold a total of 150,000 cars, the electric vehicle represents 0.8% of the global automobile market in Europe, and 1% on a world level (not including unregistered Chinese cars which account for almost the same volume). Renault's market share is 25% in Europe and between 60 and 70% in France. We have not yet entered the Chinese market, which is the largest market in the world, but we intend to be there in the near future.

A sense of history

All the reasons behind the strategic choices made by Carlos Ghosn in 2009 have been justified, starting with pressure from the political and legal environment. Even if we had not had the same foresight and vision as we do today about traffic restrictions encouraging zero emission technologies, we were still able to recognise this in the early stages, and this macro-economic pressure has merely increased. As a result, manufacturers have made a very strong stance in terms of reducing CO_2 emissions by committing themselves to achieving an objective of 95 g/km by 2020. To make this happen, the electric vehicle has a fundamental role to play. The fact that we entered this sector so early on has helped us considerably, on the one hand because each electric vehicle counts towards achieving this objective, and on the other, because from a profitability point of view, selling electric cars enables us to continue to sell combustion engine vehicles which have a higher degree of profitability. For every ZOE sold, we can sell eight Dusters, and still manage to keep to the 95 g/km objective.

We have also responded to technological pressure which is growing faster than we thought it would, and will continue to do so because of the vast amount of investments which are now pouring in because the entire industry has followed suit. At the end of 2016, a model with a 41 kWh battery was launched. It looked like the ZOE model which had a 22 kWh battery and had been put on the market four years earlier. The reason for this is that despite almost doubling the battery energy, the dimensions and volume of the car remained similar. This made it feasible to increase the selling price of the car by approximately 2,000 Euros. This represents major progress in itself and took place two years earlier than we had expected.

Furthermore, our clients are very satisfied. One of our strengths is our ability to produce an electric car which is relatively silent, and we are confident about the growth of the market. Anyone who lends his electric car to someone else can tell you how happy people are to drive it. It is not surprising that ZOE is the Renault car which most drivers recommend. It is often the second in the market, but the number one in terms of customer use and satisfaction. Driving an electric car is a real godsend!

Innovations across the board

The electric car is characterised by a number of innovations which are not all uniquely related to its electrification. When one designs an electric vehicle, one not only changes the engine (which is similar to a change one can make from a diesel model to a petrol model), but one also creates a totally new architecture and functionality. There is a steep learning curve.

Creating new products and uses

Innovation was essential in order to reduce energy consumption and optimise what is unnecessary in a combustion engine. ZOE was the first car to have a heat pump in place of the traditional cooling and heating system. A vacuum pump had to be installed for the brakes. We also invented a decoupled foot brake in order to regenerate the maximum amount of energy and limit the amount of energy loss in the brake pads. Additionally, since there was no source of heat, snow stayed stuck on the car's underbody and therefore there were problems of corrosion which did not necessarily exist on other models. This is not something which one thinks about straightaway!

Another important innovation was the Chameleon cable charger which is extremely flexible, and allows charging for up to 3 kWh (this is rapid). This innovation helped us to learn more about the state of the charging networks and electrical connections. In France, only 40% of private charging installations keep to norms. ZOE is the most flexible car in terms of methods of battery charging, but it is also sensitive to the quality of the charging network. It is this sort of 'new learning' which we have had to incorporate into our organisations.

As well as individual components, the electric vehicle has completely changed automobile architecture.

Setting ourselves challenges in order to remain number one

In 2009, we announced that we were entering into the electric car sector. We put the Kangoo on the market in 2011 and the ZOE in 2012. As well as our two-seater Twizy and our three-box design Fluence, sold in Korea, we had the largest range of electric cars in the sector. This was no reason for us to be complacent. Every year, important innovations have allowed us to improve our products. Our first innovation was the internalisation of a new electric engine in 2015 which we worked on in our Cléon factory (also producing diesel engines). Prior to this, we had outsourced to Continental. This internalisation demonstrated visible benefits in terms of cost, compactness, control of the value chain, and also new processes which could be learned. This engine was very complex and combined both technologies from traditional industries and its own unique winding capacity. In 2016, our new battery clearly distinguished itself from all others with its ability to travel 300 kilometres without requiring recharge. In 2017, in the face of pressure from logistics experts and large cities, and in view of commercial development and urban logistics, we launched the Master model. This year, we have created a more powerful engine to assist cars which are more versatile and autonomous. But we are not stopping there!

Improving profitability

The first cars we sold were not profitable, but we quickly started making money, and we worked very hard to achieve the Group's average profitability which we exceeded in the end. This idea of 'recovery profitability' proved to be fundamental in allowing us to continue our adventure. Clearly, the ability to motivate organisations in order to sell vehicles which erode profitability necessarily has its limits. It was therefore important to find the right measure in terms of volume elasticity. In France, the degree of leeway which is afforded by high tax incentives meant that our costs were similar to those we had with the combustion engine. In countries with very

few tax incentives, there is very little elasticity of volume. Even if prices vary by 1,000 Euros, they are still much greater than prices for combustion engines.

Our electric vehicles have the largest unit turnover, even though they are only in segment B. They also represent great value for the consumer, as an electric battery is worth the equivalent of five years' worth of fuel.

Finally, due to the increase in volumes, diminishing costs and the creation of value because of the new battery, we have exceeded the Group's average profitability. This has enabled us to be able to write the next chapter in the story of the electric vehicle.

First lessons

These first nine years of our experience in the electric car sector have enabled us to progress faster than our competitors. People often mention the technological aspect, but this is only a small part of what we have learned. In fact, the electric car has turned our industry's value chain completely upside-down, and changed it at every level: technology, factories, sales and after-sales service, and financing.

An industrial transformation

We manufacture our electric cars using the same manufacturing lines as for combustion engine cars. This industrial flexibility is essential in helping to control costs in an environment whose uncertainty is heightened due to new market developments. At this point in time, it would not be conceivable to have lines intended purely for electric car production.

On another note, we produce all our battery packs ourselves. Their manufacture is in fact very similar to car production as both involve mechanics, thermo-dynamics and assembly. We are good at it, and in any case, we are better than chemists.

Changing the sales team role

Customer service has completely changed. The sales force has had to learn to talk to customers about their habits and practices in order to understand their needs. This is a completely new approach and a change to the usual methods, and requires us to accompany and assist our salesforce. The sales representative must ensure that the customer will have the means to recharge his car, either in his private residence or in collective housing areas, as well as on public roads. Whereas in the past he negotiated sales discounts; today he is a mini-project manager, and all the more so if he is in charge of selling corporate fleets of cars. The transformations underway are important and large-scale, and involve not only new vehicles, but also recently, second-hand cars.

Batteries with rental contracts

We launched the electric vehicle with batteries which are rented. Today this accounts for more than 85% of our sales. This not only enables us to ensure the durability of the batteries, but also to set a reasonable price and to put in place a well-known financial leasing scheme. This consists of buying a ZOE for roughly the same price as a Clio, and paying every month paying the rental cost for the ZOE's battery as opposed to petrol.

The cost of electricity to charge the battery is marginal, and with time will be almost zero because of processes whereby one can charge intelligently ('Smart Charging'). Today it costs at least 3 to 4 Euros to charge a battery which will last 300 kilometres, but our collaboration with energy companies will help to reduce this amount even further.

A new ecosystem

24% of the cars which Norway sells are electric compared to 0.1% in Italy. Curiously enough, in both of these countries, the customers and the range of cars is relatively similar. This massive discrepancy in sales can be explained by the difference of levels of maturity and stability of the ecosystem. In France, this is still an important

change for us. We are not yet completely masters of our destiny. We are not used to this situation. If there is a good dealership network, an attractive and competitive car like the Clio will sell well, but with an electric car, this is not enough. Apart from our traditional performance, we must be able to make a new ecosystem flourish and make it visible for the customer. This is a change which we have to implement everywhere including in our organisations. In my team there are six people who work exclusively on relations with the energy sector in order to add value and reduce the costs of the use of cars and of charging batteries.

We are also involved in the development of public charging terminals, having created an 'inter-operability platform' and a payment card. We are in charge of ensuring the reliability of these terminals because every day customers come into our dealerships to let us know when the electric car-charging hot spots are not working. In most cases, it is not the fault of the car. The car industry is increasingly involved with its environment and there are still new things to be invented in terms of the effect of external factors on the perception of the brand and its quality.

We are learning every day. Our competitors will also have to take the steps which we did over the past nine years, even though they may move a little faster than us.

The future

There is a consensus that the electric car will have a market share of approximately 10% between 2022 and 2025. The volume, especially the cars produced in China, will therefore be significant.

Market trends

The market is divided into three segments: affordable, mainstream and premium. The premium brands sell batteries which are very powerful and cover all uses, but will remain expensive despite the huge reduction in price per kilowatt-hour.

Other producers are tending to diversify their sales offers. Some generalised manufacturers, like Hyundai, sell 40 kWh and 60 kWh Kona batteries by concentrating on a battery which keeps its charge for a long time at a fair price. In theory, customers want more battery life, but if they had the choice, they would prefer to pay 5,000 Euros less. Today, our customers who drive ZOEs travel an average of 54 kilometres every day, compared to 38 kilometres for Clio drivers who use petrol. Therefore, we have largely covered the Segment B market, and we are now expanding by developing the next car segment which will require longer battery life. We also have to reduce costs by keeping batteries the size which they currently are as this will compensate for the reduction in tax incentives and encourage massive scale mainstream markets.

We also expect to take part in the emergence of the so-called "affordable" segment by marketing cars which have a basic level of battery life. This is our strategy in China with our Kwid car which will combine two of Renault's know-hows: the electric vehicle and the affordable vehicle. The Kwid will be characterised by an attractive design, a focus on the fundamentals which our customers expect, and an unparalleled price. We are convinced that there is a market for this especially with car sharing operators who need to reduce their operating costs in order to make their business models more profitable, and customers who have a limited budget and live in places which make it essential to have a car.

Expected 'tipping points' between 2020 and 2025

The ability to predict where the break-even point and where the 'tipping points' exist is the basis for a robust and long-lasting business. In these circumstances, if batteries drop in price, volumes increase and the cost of cars falls, it is certain that we will reach a tipping point regarding operating costs between a petrol-fuelled combustion engine car and an electric car. However, how long this will be before it happens will depend on the size of the batteries. The smaller the car and the smaller the batteries, the more the uses of the car will be limited and this tipping point will be reached sooner.

Smart was the first to announce that it would no longer make combustion engine cars. Segment A (mini cars) cars will therefore be completely electric when the next decade begins. As far as segment B (small, city cars) cars are concerned, the tipping point will take place between 2020, 2021 or 2022, depending on the changes in battery cost and tax incentives. For larger cars in segments C and D which have 60 or 80 kWh batteries, it is likely the tipping point will be in 2025.

Significant changes and performance

We announced the creation of a new, joint platform with Nissan, completely dedicated to the electric car. At the time when there will be sufficient and significant volumes, we will massively reduce production costs and initial entry costs. New generations of batteries will make significant changes to costs as will new generations of e-engines. There will also be major changes in the power electronics sector between 2020 and 2025 which will make the battery smaller and reduce the cost of mechanical units. However, as well as cost reductions, the new platform will bring a great deal of value. For example, it will open new doors for the design of much shorter cantilever beams and much larger wheelbases, and this will greatly increase the size of the car passenger compartment. Subsequently, one will be able to buy a vehicle which is segment B in terms of its size, but will have an interior compartment equivalent to a segment C vehicle. This perspective is fundamental because it will give us a very attractive product, not to mention the advantages it will give to the environment.

We will continue to work more on the dynamic performance of cars. In 2020-2022, we will be launching a basic segment B vehicle which will have an acceleration capacity equivalent to a Clio Renault Sport. As far as technology is concerned, it is expected that real progress will be made. It is hoped that drivers will be less occupied and available to do other things apart from driving the car when they are behind the wheel. Consequently, car interiors will be more important.

Affordability, the key to market growth

Our strategy has always been based on the affordability of our vehicles, and we will continue to do so. Liquid lithium-ion is not expected to be used after 2020 or 2030, and consequently we are preparing new batteries with solid electrolytes which are less sensitive to temperature, have less cobalt, and are therefore less costly. It is not a question of making technology for technology's sake, but reducing costs.

Furthermore, even though the car is a means of mobility, it is not used 90% of the time. If the car remained plugged in, it would represent a unit of energy storage on the energy network in a context where renewable energies are unpredictable. Therefore, the electric car will become a solution for storage which is almost free. In areas which are delimited, such as islands, electricity producers are ready to pay for customers' batteries in order to use the stored energy which exists. Our experiment on the island of Madeira, at Porto Santo, is being carried out in this context. We have only got to the 'proof of concept' stage, but this initiative illustrates the value which the car represents in the energy sector. Clearly it is an extreme case, but it shows the extent to which a connection with the energy sector can be an important affordability factor.

The key issue in the coming months will be how the energy companies will 'share the cake'. There are real opportunities available if we can listen to each other intelligently.

Developing new fields of value

We intend to look for new sources of value especially with respect to energy and mobility. We are therefore targeting several operating margin points regarding data, mobility and energy. In an electric car, many elements can change because of the software. This creates incredible possibilities in terms of data. For example, it is now conceivable to sell a 90-horse power engine which can occasionally reach 110 horse power. Tesla has already achieved this having made great progress with regards to the battery. We are therefore investigating further sectors where we traditionally have found value as well as new fields.

There will be less sales offers on specific products or post-sales financing, and more on integrated solutions which are relevant both to the energy and mobility sectors. This is a new and disruptive change which we are experiencing!

It is fascinating to observe the interrelationship between three major innovations which feed off each other in a positive way. They are the electric vehicle, renewable energies, and the autonomous car. Such organisation truly gives hope for the future.

Discussion

Technological and industrial innovations

A speaker: *Will the development of batteries be hampered by the lack of availability of constituent elements?*

Éric Feunteun: This is perhaps true in the short-term, but certainly not in five years' time. It was difficult to predict volumes of electric vehicles in the past, and investors are careful people. However, the situation has generally tended to regulate itself. Short-term problems include adjusting capacities between offer and demand, but, in the medium-term, production adapts itself and R&D invents solutions not involving expensive components. Today, the electrolyte in batteries is made up of 60% nickel, 20% manganese and 20% cobalt. However, the amount of nickel as well as that of cobalt (which is the most expensive component) will be halved in the coming years.

Speaker: *Will technology which is 100% electric develop sufficiently quickly to be able to cover the entire car range, or will we have to call on other hybrid rechargeable technologies to start with?*

É. F.: We will need other technologies. Our approach is not at all dogmatic and even though we are convinced that the end goal is 100% electric, we will decide according to practices and tax situations. To produce a segment C car, one needs a battery which is at least 80 kWh. We will get there in the end as long as we are able to make vehicles which both correspond to customers' practices and our affordability reasoning.

Speaker: *What about your industrial capacity? One has to make products as well as factories, especially if one is producing battery cells.*

É. F.: We have real room for manoeuvre because of our flexible factories. Our reaction times are relatively reasonable because we are currently working on the capacities for 2020. We do not intend to enter the battery cell industry which is the suppliers' job. Nissan has just come out of this sector. We are working with Nissan on battery packs. There might be discussion if it was a case of working on modules.

Speaker: *What do you think of the idea of making a European sector project for electric batteries?*

É. F.: We are in favour of it even though we think it will not be applied to the technology which exists today. We are encouraging our suppliers to locate in Europe. However, it is not enough just to make a ruling on a sector; one has to make it competitive.

Speaker: *How should the supply chain evolve?*

É. F.: Apart from batteries, I cannot see any challenge or major change in comparison to the rest of the industry. The real challenge of the supply chain comes more from the uncertainty regarding volumes. Paradoxically, an electric car can be transformed, just like any other car, but a battery by itself is considered to be a hazardous material. We still need to break down some regulatory barriers.

Speaker: *What do you think of Bolloré's battery?*

É. F.: For car-sharing purposes, this battery technology may prove to be relevant. However, for private individuals, it is not of much interest.

Speaker: *Renault worked a great deal with the 'Better Place' company in Israel. Is this still the case?*

É. F.: The limitations of this business model for removable batteries are not technical but economic. They are linked to the difference between the cost of a Better Place station (approximately 1 million Euros) and a few tens of thousands of Euros for a rapid-charging station. We do not know how to fill this gap. Furthermore, we noticed that the practice of rapid charging is marginal, and that most of the time slow charging is sufficient. Therefore, we have wrongly copied the service-station model, but this is part of the learning curve.

Patrick Pélata: *The need to charge cars to travel long distances was greatly overestimated by Better Place. Also, the fact that they began with a Fluence car model meant that they had to put the battery in a vertical position in the back of the car, in other words, quite high up. To get the battery down in order to charge it, required civil engineering, the main cost item in a charging station. In any case, the entire car industry changed the day that Renault (Israel) and Better Place publicly announced the production of tens of thousands of electric vehicles.*

Recharging one's batteries

Speaker: *What is the network's peak charge capacity?*

É. F.: Studies we have carried out with Enedis show that on a national level, we are in the right range, even if all vehicles are charged at the same time, which would not happen. It is more a problem for the local networks. We are pioneers in intelligent, monodirectional charging for the time being. In the Netherlands, Renault bought a start-up which developed an application which allows one to delegate the charging of one's vehicle and which surveys market energy uses. This in turn reduces the impact on the networks and makes savings. This solution generates a further gain of between 60 and 80 Euros per year, the equivalent of a reduction in car price of 300 Euros, which is why it is important to work with the energy sector. With time, intelligent and bidirectional charging should become regulatory.

Speaker: *Will it be possible to charge a vehicle quickly by direct current in the future?*

É. F.: Yes. We will soon be introducing a 50 kWh direct current charge (DC) with the ZOE. We had chosen this because charging by an alternative current (AC) would be less expensive. It was the right choice until 22 kWh, but beyond 50 kWh, the AC no longer works. Also the emerging electrical norm in Europe is the DC Combo. We are one of the only manufacturers to use the AC up to 22 kWh, and we will continue to do so because it offers a truly competitive advantage, especially with regards to fleets of cars.

Speaker: *Would you ever think of using inductive charging?*

É. F.: Our engineers are very much in favour of this. However, I am rather sceptical because we cannot predict the competitive costs very easily, and there are still a number of technological questions. We are considering solutions with robots. There will be high end-of-the-range applications, but I have no idea how quickly they will be adaptable to mainstream cars. Finally, we are working on battery cable-rewinding systems in order to improve the customer experience.

Speaker: *What about recycling batteries?*

É. F.: Our batteries last a long time, even longer than we thought they would. The first generations will have a second life because we are working on applications which make it possible to use them in stationary systems once they have reached 75% of their initial capacity.

Recycling is a legal obligation the cost of which is included in our costs. Recycling costs will diminish as volumes increase and recycled materials gain in value. We already recycle between 100 and 200 batteries, which were either damaged or were test batteries. Recycling exists and should improve as volumes increase.

Diversifying the offer

Speaker: *Is any segment A vehicle currently being studied? Valeo announced that it had perfected a technique which allowed it to put a 2-seater car on the market for 7,500 Euros.*

É. F.: Kwid's aim is just that, to cut costs. Valeo's project involves a 48-volt battery. As far as we are concerned, we have chosen a 4-seater car with a 200-volt battery. It is important that the cheap electric car is not some sort of lower grade car.

Speaker: *Could you say more about your future products?*

É. F.: We announced that we would increase the number of electric cars we produce from four to eight before 2022, and we will renew our existing products in order to extend the range both upwards and downwards.

Speaker: *Do you have any projects for hydrogen engines?*

É. F.: We are working with a French start-up to insert fuel cells into the Kangoo. The technology works and is not a safety problem. However, there are three problems: the cost, the uses and the recharging networks, and new habits. Reverting to using a service station is unimaginable for electric car drivers. The only possibility for hydrogen in the car market in my opinion would be as a storage source in the long term.

Speaker: *What does one have to do in order to be part of the Chinese market where changes take place very rapidly?*

É. F.: We have to have a double presence there, for the commercial side and for the sourcing, because we will only achieve economies of scale when we have enough volume. We are just starting to make our mark and increase the sales of our cars with combustion engines. As far as the electric car is concerned, as I mentioned, we have launched an affordable vehicle in this market.

Speaker: *Chinese manufacturers are making firm progress. How powerful are they on the world market?*

É. F.: For the time being, they are focused on their domestic market. This will change, but we do not know when. Sourcing a Chinese battery for a project outside China is currently very difficult. This is why it is important to be there in order to have comparable bases for cost and technologies.

Speaker: *Do you envisage acquiring start-ups in France or abroad?*

É. F.: Yes, essentially for the ecosystem. We have acquired 25% of Jedlix, a start-up which specialises in 'Smart Charging' for us in the Netherlands. In the mobility sector, we have acquired several large start-ups, such as VTC Marcel in Paris. We have other projects for partnership, acquisition and business creation. We are lucky enough to have significant means of investment using in-house funds.

Speaker: *Why do you not sell ZOE outside Europe, in China or Japan?*

É. F.: This year we will sell between 1,000 and 2,000 ZOEs outside Europe, especially in Colombia and Dubai. In China, however, the price of the ZOE would not be compatible with the market. Japan has its own norms for battery charging. In view of the market share which we might be able to have in Japan, we cannot let ourselves install this norm in our vehicles.

Evolution of the ecosystem

Speaker: *Is the ecosystem changing at the same rate as technical and industrial progress?*

É. F.: By definition, the ecosystem never changes quickly enough! To change technology, one has to align certain companies, but the problem is that the ecosystem is made up of a very large number of companies which are not used to working together. Today the key challenge is no longer public charging (in other words, the quantity of terminals) but their quality. There are two key subjects: car parks for buildings, and our sales propositions. We carry out traditional lobbying which has enabled us to have the right to charge batteries legally, and there will soon be more simple and more competitive offers for joint ownership properties.

Speaker: *Is the car sales sector capable enough to get past the bottleneck of new customer relations?*

É. F.: The profession of teams in charge of relation with energy companies has completely changed. One no longer needs to convince cities to install terminals, but to create projects which affect more people (for example, generating and sharing the revenues from 'Smart Charging'). At ENGIE, the creation of a B to T (Business to Territory) is very interesting. This dimension is also emerging at Renault with sales to public organisations. There are also technical/commercial activities like the experiment I mentioned in Madeira.

Speaker: *Is it hard for you to recruit employees with certain skills without which you would not be able to advance the business as fast as you would like?*

É. F.: Internally, our challenge is to capitalise on our know-how while advancing the careers of employees who specialise in the electric car. From the outside, Renault is seen to be an attractive employer and there is no lack of applications from people with skills which we need.

Speaker: *People who own electric cars have a contract with an energy supplier but use the services of another when they use a recharging terminal. New players are constantly emerging in this sector. What are your relations with them?*

É. F.: We are discovering this sector which is characterised by the presence of many companies and structures (production, transport, distribution, supply, regulation). Its business model is complicated, not to mention the networks which are not very digitised. The three challenges of the energy sector are decarbonation, decentralisation and digitalisation. We have a long way to go in order to be part of these transitions.

Speaker: *Are customers ready to play a role in the energy transition?*

É. F.: They should do it without realising! If someone offers you 5 Euros per month to charge your car intelligently with 'Smart Charging', this will motivate you less than if someone offers you a 2% additional discount on the price of a car. The challenge is mainly a marketing one.

Speaker: *It seems that the electric car is growing less quickly in the corporate car fleet and car rental sectors than in the private car owner sector.*

É. F.: Today, "fleet mixes" have more ZOEs than Clios, especially since we can drive more than 300 kilometres before recharging the battery.

As far as second-hand cars are concerned, we are quite confident. Technology (without batteries) is more simple and therefore more long-lasting, the durability of the battery is no longer an issue, and the volume of demand depends essentially on tax incentives.

The remaining issue is export.

Speaker: *Are people still enthusiastic about combustion engine vehicles?*

É. F.: We still have a number of very short-term challenges for combustion engines. Apart from the purely technical challenge aiming to strike a balance between less pollution and performance, we are faced with a cost challenge. Either way, the combustion engine vehicle still represents the vast majority of volumes, and this will remain the case for a while.

Presentation of the speaker

Éric Feunteun: Renault's electric vehicle programme director. He has twenty-one years of operational experience in the Renault Group, in particular in management positions in the Supply Chain and Sales departments. He was also in charge of the Renault Operations department. In 2013, he was appointed assistant director of the Kangoo and ZOE, and on November 1st 2014, he became assistant director of the Kangoo, ZOE and Twizy programmes. He has managed the Electric vehicle programme since April 2015, and since 2017, he also runs the New Business department.

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