



**Ban on internal combustion
engines in Europe: what are the
prospects for the Normandy
automotive industry?**

December 2025

Ban on internal combustion engines in Europe: what are the prospects for Normandy automotive industry?

DECEMBER 2022

Advisory opinion adopted by
unanimous vote

Chair of the Commission
Philippe ENXERIAN

Rapporteur
Pascal GILOIRE

With the contribution of
Pierre ALLAIN

Summary

Ban on internal combustion engines in Europe: what are the prospects for Normandy automotive industry?	1
Summary	3
Composition of the 4 th Commission.....	4
Composition of study committee.....	5
Hearings and acknowledgements.....	6
AVIS	9
Preface: A sector in crisis with deep roots.....	11
1. Common misconceptions about electric vehicles.....	13
2. Industry in crisis.....	20
3. The automobile of tomorrow: between high technology and circular economy 27	
4. CESER recommendations	32
CONCLUSION	40
ANNEXES	41
Annexe 1	43
Bibliographie	44
Liste des sigles	45
Table des matières	46

Composition of the 4th Commission

« Economic Development »

Chair : Philippe **ENXERIAN**

Vice-chair : Emilie **OZOUF**

Rapporteur : Pascal **GILOIRE**

Jacques **BELIN**

André **BERNE**

Guy **BESSIN**

Mourad **BOUKHALFA**

Eve **DOUET**

Mathias **DUBOURGUAIS**

Jean-Luc **DUVAL**

Olivier **FLEUTRY**

Fabienne **FOLLIOT**

Romuald **FONTAINE**

Arnaud **FOSSARD**

Véronique **FRANCOIS**

Guillaume **GRAVIER**

Thierry **HELIE**

Dominique **JACQUOT**

Rémy **LECOEUR**

Philippe **LEGRAIN**

Michel **LEGRAND**

Roseline **LEMARCHAND**

Véronique **LEROUX**

Christine **LEROY**

Emilie **LESSARD**

Pierre-Edouard **MAGNAN**

Marc **MAOUCHE**

Jean-Denis **MESLIN**

Barbara **PAVIOT**

Claire-Hélène **PEGHAIRE-
GAUDEUL**

Xavier **PREVOST**

Dimitri **ROGOFF**

Xavier **SAVIN**

David **SEBAG**

Arnaud **TOUFLET**

Thierry **URVOY**

Bruno **VALET**

Valérie **VARENNE**

Alain-Pierre **VAUTIER**

Camille **VERCKEN**

Anaïs **VERGER**

Jean-Dominique **WAGRET**

Composition of study committee

Philippe ENXERIAN

Arnaud FOSSARD

Romain FREMONT

Pascal GILOIRE

Philippe LEGRAIN

Véronique LEROUX

Jean-Luc MICHEL

Xavier SAVIN

Jean-Dominique WAGRET

Hearings and acknowledgements

Arnaud **BOUAFFRE**

Chargé de mission - DREETS

Denis **BREANT**

Animateur du secteur automobile -
CGT

Éric **CANDELIER**

Président de Yacco SAS

Marc **CHARLET**

Directeur général de NextMOVE

Marie **CHERON**

Experte E-mobilité – Transport et
Environnement

François **CRESSON**

Responsable économie - DREETS

Frédéric **DIONNET**

Directeur général du CERTAM

Dimitri **DUREL**

Technicien maintenance éclairage
public au SIEGE27

Marc **GRANIER**

Conseiller CESER au titre de
Normandie Energies

Nicole **GOOSEENS**

Présidente de la commission
« prospective » - CESER de Normandie

Pierre **JENNY**

Directeur de l'usine de Renault Trucks
à Blainville-sur-Orne

Bernard **JULLIEN**

Maitre de conférences en économie à
l'université de Bordeaux

Olivier **LAINE**

Chef du département projet – Renault
Cléon

Philippe **LANDREIN**

Responsable mobilité au SDEC
Energie

Nicolas **MARAIS**

Président de la commission « emploi-
formation » - CESER de Normandie

Jean-Marie **ROBERT**

Secrétaire national à la FGMM – CFDT

Nicolas **TCHENG**

Responsable relations institutionnelles
Renault groupe

Cédric **THOMAS**

Directeur technique au TE61

Aimery de **VANDIERE**

Directeur Général des Service au
SIEGE27

Denis **WENDLING**

Chargé de mission mobilité bas
carbone au SDE76

Olivier **ZANUSSO**

Directeur général de Lormauto

AVIS

Preface: A sector in crisis with deep roots

The automotive industry is undergoing a paradigm shift: the situation, already complex in December 2024, has deteriorated further. Aggressive practices by Asian players and falling car sales are compounded by the shift to electric vehicles, itself disrupted by delays in European battery production. In recent months, events have accelerated, whether through business failures (suppliers, subcontractors) or statements from industry stakeholders calling for a review of regulatory standards. By taking up, at the end of 2024, the issue of the impact of the shift toward electric powertrains in the sector, the CESER intended to provide public and private stakeholders in the industry with a snapshot of the consequences.

Given the main current challenge facing the automotive sector, the CESER opinion focuses on the consequences of the transition to electric powertrains. As a result, hybrid vehicles, whether plug-in or not, will not be the subject of recommendations since their sale could be banned from 2035 onwards because they still include an internal combustion engine and because of the European measures under consideration. This approach aims to concentrate efforts on the development of fully electric vehicles within a framework of rapid and effective decarbonization.

The planned ban on the sale of new internal combustion vehicles from 2035 onwards is pushing major groups to anticipate this transition through significant investments in the development of new electric models and the adaptation of their production facilities. A reversal would therefore be complex and costly.

The CESER opinion does not directly address the strategy to adopt about China. Indeed, China's aggressive industrial policy operates on several fronts: control of raw materials, exports of low-cost vehicles, and more — all of which enable it to enter the European market with low-cost vehicles. Defining an appropriate response falls within France's national, European, and international policies and requires a coordinated approach at these distinct levels.

The consumer will be the key to the future of the automotive industry, both through future choices of powertrain based on needs and means, and through choices regarding modes of transport. The opinion highlights the main factors that will shape consumer choices, without claiming to provide answers to all the identified barriers to purchase, beginning with vehicle purchase price, range, and access to battery charging.

The sector occupies a central place in regional industry, meaning that many connected industries depend on it. In this respect, the multiple dimensions involved — local for local authorities and SMEs, national and European for public policy, international for manufacturers' strategies — require awareness among all stakeholders to avoid the collapse of this sector in our region.

Many issues outside the CESER's remit must be addressed to improve the situation of the automotive sector in Normandy: energy prices and sourcing, manufacturers'

strategies, thinking in terms of usage rather than number of sales, and more. Without the necessary reflection on these elements, the Norman automotive sector cannot be saved.

The review clause concerning the ban on sales of new internal combustion vehicles, initially announced for 2035 and originally scheduled for 2026, is being brought forward this year by the European Commission, following a request from all European representatives of the automotive sector. If this request is granted, the present CESER study contains recommendations that can be implemented regardless of the final deadline.

Moreover, the CESER believes that a postponement of the 2035 date, set for ending the sale of new internal combustion vehicles in Europe, would not fundamentally change the situation considering the investments and decisions already taken. The necessary changes would concern issues of scale, pending an increase in production volumes, which can be supported by the first set of recommendations in this opinion. The second focuses on support for and promotion of Norman assets and remains relevant regardless of the year in which the sale of new internal combustion vehicles is banned.

The CESER wanted to draw up a precise overview of the automotive sector in Normandy and formulate recommendations so that the Region and other Norman stakeholders could rely on its study to negotiate with national and European actors when the review clause is activated, scheduled for 2026.

It is essential that all Norman stakeholders mobilize. In this respect, the role and position chosen by the Normandy Region will be central, either as an active participant or as a coordinator.

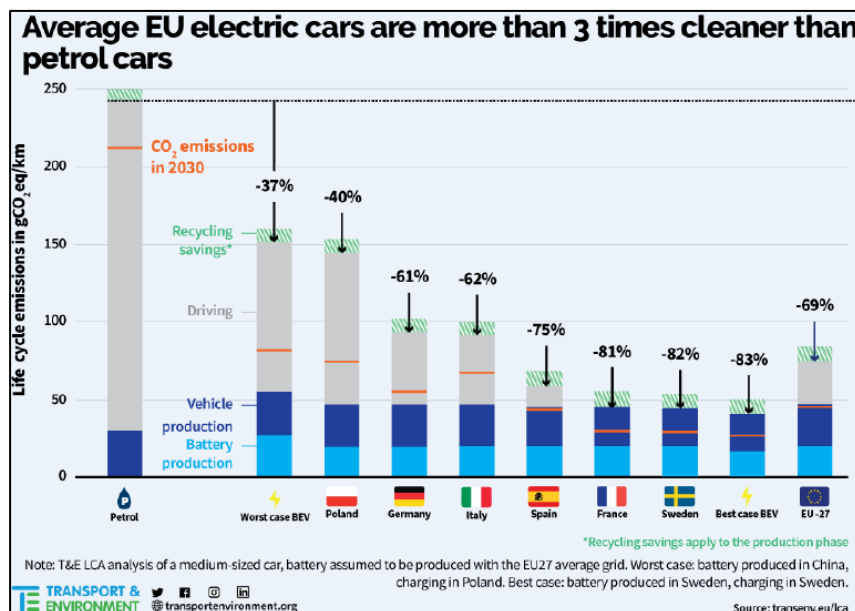
1. Common misconceptions about electric vehicles

- Electric cars emit more CO₂ than internal combustion cars when the entire life cycle, including manufacturing, is considered — **FALSE**

The manufacture of electric cars is particularly energy-intensive, especially in the case of batteries, which alone account for 50% of carbon emissions. The extraction and refining of lithium, cobalt, and nickel have a significant environmental impact, particularly in the territories where these activities take place: soil and water pollution, deforestation, depletion of freshwater resources, and harm to biodiversity and the health of local populations. These activities result in greater greenhouse gas emissions than those produced for internal combustion engines.

If this statement is true when production is considered in isolation, a life-cycle analysis shows that the electric car has a lower environmental footprint than an equivalent internal combustion car, provided of course that the electricity consumed is produced in a decarbonized way.

The environmental impact of the electric vehicle is linked to the energy mix of the country: the more developed the decarbonized component, the lower the environmental footprint. An electric vehicle will therefore have a different footprint depending on the country where it is produced and where it is used. Since battery manufacturing requires a great deal of energy for refining rare earths and materials, consumer countries — and France in particular — shift the environmental cost onto

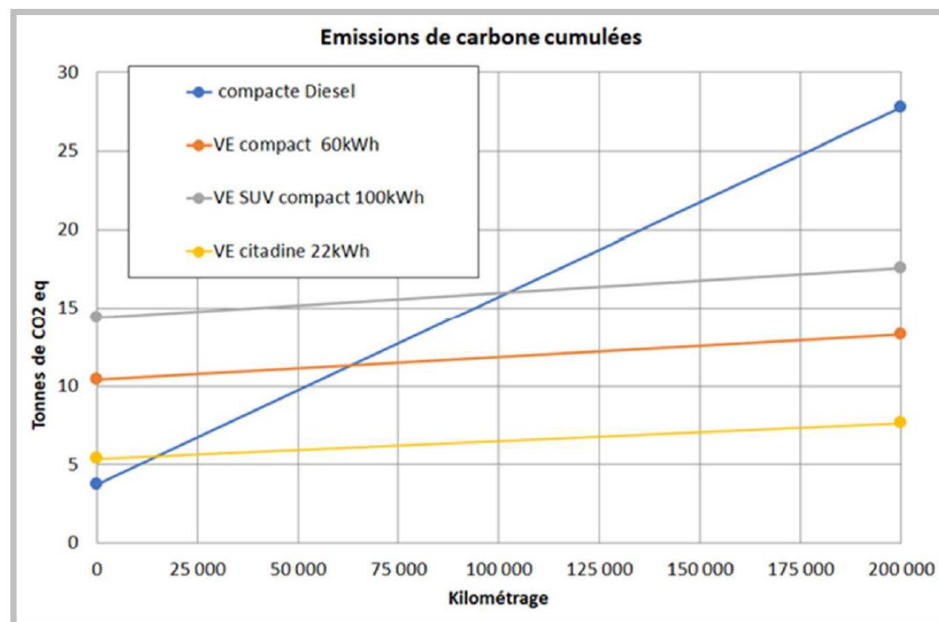


Analyse en cycle de vie comparative entre une voiture électrique et thermique selon les pays – T&E's analysis of electric car lifecycle CO₂ emissions

producer countries — and especially China.

Environmental footprint analysis highlights a “carbon debt” at zero kilometers: at the outset, the car has a kind of debt that will decrease over the miles driven. Over its full

lifetime, ADEME¹ estimates that the electric car has a carbon impact two to three times lower than that of a similar internal combustion model, provided it uses a reasonably sized battery (below 60 kWh, or 450 km of range for a compact sedan). Yet the commercial strategy of all manufacturers is to offer ever larger vehicles with ever greater range, which goes against the stated goal of reducing carbon impact.



ADEME opinions — Electric cars and charging stations.

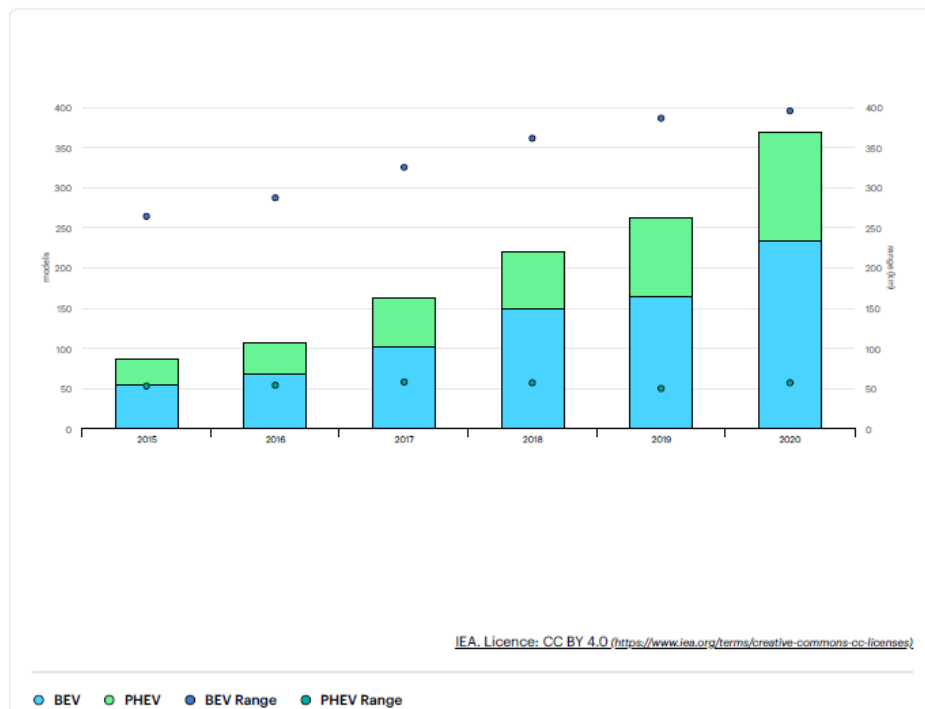
It should be noted that emissions are not limited to CO2 alone. Cars also emit other particles, such as nitrogen oxides (NOx), which are emitted by diesel-powered vehicles, or emissions linked to tire and brake wear. On this point, the electric car emits no NOx, but it does emit more tire-related particles because it is heavier than an equivalent model. Regenerative braking, by contrast, enables electric cars to emit fewer brake-related particles than internal combustion cars.

- **Electric batteries can no longer be used once their capacity is insufficient for vehicle use — FALSE**

The lifespan of batteries in electric motors is difficult to calculate given the constant and rapid pace of technological change. One only needs to compare the durability of the first batteries with that of today to see technological progress in this field.

An electric car battery is no different from those found in our modern electronic devices. It is an accumulator that converts chemical energy into electrical energy. It consists of units called "cells," composed of an anode, a cathode, a separator, and an electrolyte solution. The process of converting chemical energy into electrical energy gradually loses capacity, which reduces charging capacity over time. Nevertheless, as noted above, this capacity is constantly improving.

¹ French Environment and Energy Management Agency



Evolution of electric car battery capacity since 2015 – IEA 2021

Manufacturers now offer battery warranties: when the battery loses between 20% and 30% of its range, the driver can have it replaced. Once removed from the vehicle, the battery can have two destinies: reuse or recycling.

To be recycled, batteries are drained of their residual energy, dismantled, their internal components are crushed, and the metals recovered. The recycling sector is currently being structured to enable viable economic activity around this process, which is still under development. However, it is currently facing a supply problem: the recent development of the electric mobility market is, for the time being, complicated by the small number of batteries on the market. As a result, pending the sector's profitability, recycled materials are more expensive than their virgin equivalents, meaning those extracted directly from mines.

Beyond battery recycling, a question to consider from the design stage of vehicles is that of easy repair in the interest of owners.

It should be noted that more companies are proposing to reuse batteries for other applications.

- **Electric vehicle sales are falling — TRUE.**

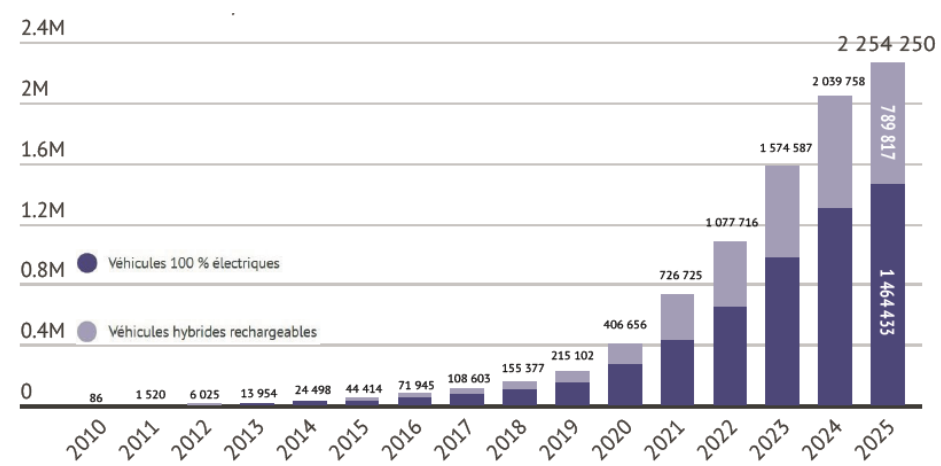
The market share of electric cars in France has indeed been declining since 2024, a first in more than a decade. It fell to 15.7% in May 2025, compared with 16.9% a year earlier. Registrations fell by 7.1% in the first five months of 2025 compared with the previous year.

Flagship models, such as the Tesla Model Y for example, have seen a marked decline, while others have managed to limit losses.

This decline is largely explained by economic factors: the reduction in public support, notably the sharp drop in the ecological bonus for electric vehicles, from 5,000 euros to 1,000 euros in 2025, the rise in the average price of new vehicles, weakening purchasing power, and consumer choices shifting spending toward other expenses rather than the purchase of a car. The general economic climate — inflation, falling household consumption, international instability — is weighing heavily on the automotive market.

Over the longer term, however, the electric car has become firmly established on the French automotive market: despite the cyclical slowdown, registration volumes remain well above pre-2020 levels. The recent decline therefore belongs to a consolidation phase following a period of strong growth and does not prevent the structural rise of the electric car on the French market.

Evolution of the electric and plug-in hybrid vehicle fleet since 2010



Avere France — June 2025

The used-car market today concerns mainly internal combustion vehicles, which account for 80% of sales. It is structured, mature, and benefits from strong demand. By contrast, the used electric vehicle market is struggling to take off because of several obstacles: pricing remains complex, mainly because of uncertainty regarding battery condition and residual value. Price variations in the battery market, fear of reduced range or high replacement costs, as well as the lack of hindsight on the durability of current models, all contribute to an atmosphere of uncertainty that is harmful to the structuring of this market.

This lack of benchmarks therefore makes it difficult, for the time being, to create a dynamic used electric vehicle market, even though many company vehicles will be entering this segment in large numbers in the years ahead. More than half of new car sales come from purchases made by businesses, in the form of fleets. These vehicles, acquired through long-term leasing and depreciated over several years, later enter the used market once their contracts end, thus strongly feeding the renewal of the used car fleet. The reasons for the slowdown in the electric market are therefore even more pronounced in the case of businesses, which may delay vehicle acquisitions in the event of a fragile economic climate. Structuring the used-vehicle segment will

therefore be a key issue if electric cars are to become more widely adopted and the transition of the French car fleet is to be supported.

- **Electric cars cost much more than internal combustion cars — FALSE.**

The purchase price of an electric car is higher, for an equivalent segment, than that of an internal combustion car. This difference is often due mainly to the cost of batteries, which weigh heavily on the vehicle's purchase price.

However, the entry cost must be put into perspective by taking several factors into account: public schemes — ecological bonus, conversion grants, local aid — that reduce the purchase price, notably the social leasing scheme introduced in 2024 and 2025. These measures make it possible to spread costs over the duration of the contract, while often including maintenance, thereby limiting the initial financial burden.

Electric cars also require less maintenance (no oil changes, less engine wear, reduced brake wear thanks to regenerative braking, and so on), and the cost of electric charging is currently on average much lower than the cost of a fuel fill-up, especially if charging takes place at home, particularly with preferential tariffs such as off-peak hours.

Finally, although expensive to replace, battery prices have been falling for several years thanks to technological progress and, today, Chinese overproduction.

Thus, even if the upfront financial threshold remains higher for a new electric car, the difference tends to narrow over time, making electric vehicles an economically competitive option, especially for regular and long-term use.

It should be noted that if manufacturers and consumers remain obsessed with battery range, usage patterns are now different: an offer of low-range vehicles adapted to everyday use would strengthen the comparison in favor of electric vehicles even further.

Finally, the Chinese supply of electric cars is based on an enormous and uniform domestic market, with a profusion of manufacturers. It is because of these conditions that they are, and will remain, able to offer highly competitive electric cars over the long term.

- **Electric cars are more dangerous than internal combustion cars — FALSE.**

Several points are regularly raised concerning the danger posed by electric cars.

The lithium-ion batteries used in electric cars present a notable fire risk, especially in the event of thermal runaway. This phenomenon occurs when a battery cell overheats and triggers a chain reaction that can reach 1,000°C in a matter of seconds, igniting neighboring cells and releasing toxic and flammable gases. These fires are particularly long-lasting and difficult to control, with a risk of reignition for several hours, or even several days.

To limit these risks, manufacturers have integrated many protections and devices, including battery management systems that monitor temperature, voltage, and charge in real time, making it possible to avoid conditions likely to lead to thermal runaway.

Contrary to widespread belief, electric cars are statistically less prone to fire than internal combustion vehicles, but such incidents receive far more media coverage, which increases the perception of risk.

Another danger points for mechanics or emergency responders, regularly mentioned, concerns the presence of high voltage in electric cars. Although specific precautions are required during interventions, the vehicles are designed to minimize these risks, with automatic shutdown systems in the event of an accident.

Another concern relates to road safety: electric vehicles are often heavier than internal combustion ones because of the weight of the batteries. This extra weight can worsen the consequences of accidents, both for occupants and for other road users. Structural design and passive safety systems are therefore particularly important.

Finally, the silence of electric cars can be a problem for the safety of pedestrians and cyclists. That is why regulations increasingly require the emission of artificial sounds at low speeds to alert vulnerable road users.

- **Electric cars have little range — FALSE.**

The range of electric cars is frequently debated, often based on misconceptions that need to be qualified.

Technological progress in recent years has led to major advances in battery performance, as seen above. Today, many models offer real-world range that comfortably covers the needs of most everyday uses.

In addition, this notion of range must be placed in the concrete context of car use: average daily trips remain truly short. In France, the average distance traveled per day is often less than 40 km, well below the range offered by most electric vehicles.

Moreover, electric cars can be recharged regularly and without major constraints, especially at home and at work. This convenience eliminates much of the fear of running out of power. In addition, the rapid expansion of public charging infrastructure — including fast chargers — is helping to make electric cars a realistic option for longer trips.

- **China is the dominant player in the electric car market — TRUE.**

China has unquestionably been the world's leading market for electric and plug-in hybrid vehicles since 2015, with a 50% share of electrified car sales in 2024.

This spectacular growth takes place in the context of strong local production. Chinese electric car production in fact far exceeds domestic demand; it is estimated at 2.1 times internal demand and 1.2 times global demand. This overcapacity partly explains the strategy of Chinese manufacturers to expand internationally to sell their models.

China also dominates the lithium-ion battery sector, producing most of the battery cells worldwide, which has contributed to a very substantial drop in battery prices. This strong industrial capacity is rooted in a history built around the production of smaller batteries, combined with massive subsidies that stimulated both production and domestic consumption.

European and American players, historically focused on internal combustion engines, were slower to invest heavily in electric vehicles and batteries, but they are now rolling out recovery plans with major investments in gigafactory construction and R&D, in order to reduce dependence on China and revive a national industry. However, the creation of a European supply chain is not guaranteed in view of the rising number of business failures and the difficulties in scaling up projects, particularly in Hauts-de-France.

Despite subsidies and high production volumes, China is now facing challenges linked to intense competition in its domestic market, with more than two hundred models having seen price reductions in 2024. This reflects intense pressure to contain costs and improve productivity.

Chinese exports are significant but remain subject to tariff barriers in the United States and Europe, which complicates their growth on international markets. However, one should not underestimate the ability of Chinese industrial players to establish themselves, as they did in photovoltaics through capital strength and technological lead, nor overestimate the ability of European authorities and manufacturers to endure over time against Chinese players who will buy production and distribution capacity on European territory.

- **Electric cars break down more often — FALSE.**

An electric car has fewer moving parts and mechanical components likely to fail than an internal combustion car.

A study by ADAC, a European benchmark in automotive testing and reliability, confirms that the average breakdown rate for electric vehicles is lower than that of internal combustion cars. As for the nature of the breakdowns, half of those recorded concern the battery, which is logical given the significant role and complexity of this component. This is followed by the motor unit and the tires, which together account for 18%.

For internal combustion cars, the battery is also a major cause of breakdowns, accounting for around 45% of cases, followed by the general electrical system at 23%.

These figures show that, while certain components specific to electric vehicles account for a notable share of failures, the range of breakdowns is narrower and often more predictable than for internal combustion vehicles. Electric cars are therefore not more prone to breakdowns than internal combustion cars, and their simplified design even contributes to better overall reliability.

- **Heavy transport will never switch to electric — FALSE.**

The shorter range of electric trucks compared with their internal combustion equivalents is often presented as a major barrier, especially for long-distance transport.

It is essential to start with real-world uses when considering the relevance and feasibility of electrification. Thus, for fleets operating on regular, clearly defined, moderate-distance routes, electric vehicles can be entirely suitable: for example, waste collection, urban or regional delivery, or internal transport in industrial or port areas, where vehicles begin and end the day at the same depot, making overnight or between-shift charging easier. In addition, when vehicles belong to centralized fleets, charging can be planned efficiently, optimizing usage time and limiting the impact of reduced range. Alongside lower CO₂ and local pollutant emissions, electric trucks offer quieter operation, which has a positive impact on driver comfort and neighboring residents, especially in urban settings or during night operations.

These advantages are nevertheless associated with a fragmented market, because of these specific uses, and require flexible production lines, as is the case, for example, at the Renault Trucks plant in Calvados. The production line can be adapted to the use requested by the customer.

For long-distance uses, however, the challenge remains incredibly significant. Electric trucks currently require trade-offs related to battery capacity, charging time, and battery weight, which can sometimes reduce payload. Several avenues are emerging to overcome these limits: the development of fast charging, or hybrid technologies.

2. Industry in crisis

2.1. The French and Norman automotive industry

2.1.1. The French automotive industry

The French car fleet consists of 39.3 million passenger cars, 6.5 million light commercial vehicles, 625,000 heavy goods vehicles, and 94,000 coaches. This fleet is divided into two categories; one made up of professional vehicles and the other owned by private individuals. These two fleets follow different purchasing logics: while private individuals buy a car for personal use over a prolonged period, businesses may resell the vehicle once it has been depreciated, after three or four years. These vehicles then feed the used-car market, which is the main sales market in France. This point must be considered, because every year professional car sales account for 50% of total sales. In 2024, the used market represented 75.8% of passenger car purchases, benefiting from the growing reliability of models, even entry-level ones.

These data explain market dynamics: the average age of the fleet is steadily increasing, reaching 11.2 years in 2024 (it was 10.1 in 2017). In addition to this increase, the average age of a new-car buyer in 2025 is 54.3 years, compared with 44 in 1990.

Renewing the fleet to achieve carbon neutrality in the vehicle fleet is necessarily a long process. That is why the European Commission set 2035 as the target date for banning new internal combustion vehicles, to anticipate “zero carbon” by 2050.

As for the sector, it is made up of an “upstream” segment, which covers all manufacturing, and a “downstream” segment, which includes service activities. Estimates point to a sector comprising 149,000 companies, 990,000 direct and indirect jobs, and 155 billion in turnover. *La Plateforme Automobile (PFA)*² represents the entire sector (3,500 companies ranging from manufacturers to subcontractors). It defines and implements the sector’s strategy.

The automotive market is organized around large manufacturing groups, associated with tier 1, 2, and 3 subcontractors.

Identifying companies in the automotive sector is complicated because it is necessary to determine the share of turnover that would make them dependent on other players: some production can serve several sectors (aerospace, chemicals, refining, etc.) and be classified under another category.

A steady decline in French car production has been observed for several decades, because of the strategy adopted by French manufacturers to move closer to their markets (Eastern Europe, the Iberian Peninsula) and take advantage of low-cost countries (Morocco, Eastern Europe). This phenomenon is found, to a lesser extent, across Western Europe as a whole. In 2000, France produced 2.8 million vehicles, compared with one million in 2022. It should be noted that tier 1 and 2 suppliers followed this movement with a time lag. Manufacturers, equipment suppliers, and tier 2 and 3 suppliers anticipated this shift by reducing their investments in France.

The manufacture of an electric vehicle requires far less labor, so it is economically viable to relocate this activity to France, close to the markets. Virtuous examples, such as the production of the Renault 5 E-Tech Electric on national territory, serve as showcase cases in this respect.

It must be acknowledged that the various stakeholders widely underestimate the domino effect. Indeed, the automotive industry occupies a specific place in the industrial sphere: it brings together a very wide range of activities, thereby irrigating a significant economic fabric. As a result, many companies depend on major clients, even when their activity is not linked to this sector (plastic parts manufacturing, molding, stamping, and so on).

The large volume of internal combustion vehicles supports a network of garages and justifies the presence on the territory of refining plants that produce fuels, but also the primary products essential to the existence of the chemical sector.

However, one must avoid a certain naivety by imagining that the interests of large groups, manufacturers, or suppliers are aligned with those of the territory.

² An inter-branch organization representing the French automotive industry

2.1.2. Normandy, an automotive region in crisis

The estimate of the number of companies linked to the automotive industry in Normandy is difficult to determine, because of the complexities mentioned above. Moreover, current events in Normandy reflect numerous social plans, as is the case in the sector at national level.

Some non-exhaustive local examples:

- Akwel (equipment supplier), job protection plan involving seventy-eight jobs in Seine-Maritime.
- Marelli (internal combustion engine components), job protection plan involving 292 jobs in Orne.
- Autoliv (equipment supplier), plan to cut 230 jobs, partly in Seine-Maritime.

Latest news appears to be only a harbinger of the inevitable decline in employment and the number of automotive companies in Normandy. In this respect, the trends show an extremely worrying situation for the upstream part of the sector, while the downstream segment is benefiting in fact from the longer lifespan of vehicles.

As for the upstream segment of the sector, the Normandy prefecture estimates the number of Norman establishments linked to this sector at around 230. However, this figure must be managed with caution, as a precise company-by-company estimate would be needed to obtain an exact number. Many producers in the region are only partially involved in the automotive value chain and work with other clients. When a company conducts most of its activity with a client outside the automotive sector, it is no longer classified in INSEE division 29, which corresponds to the automotive industry.

Among these companies, there are 10 main establishments (Alpine Dieppe, Renault Sandouville, Cléon, Renault Trucks...) whose purpose is the construction of motor vehicles, 127 whose purpose is body manufacturing, and 53 producing other automotive equipment. The classification therefore matches what is observed at national level: a small number of clients with many subcontractors.

The number of jobs is also difficult to assess for the same reasons. Using the above data, the Prefecture estimates the automotive branch at 45,000 jobs, in a region where 15.4% of employment comes from the industrial sector. The automotive industry therefore ranks second among industrial jobs, behind the food industry. However, as noted above, other industries must be included in the sector, such as oil refining, which is linked to automotive production (fuels, oils, lubricants...), or the chemical industry, which uses its by-products. These industries are also affected by other unfavorable factors, such as energy prices and geopolitical developments affecting certain gas or oil-producing countries.

The upstream segment is hit hard by the crisis affecting the automotive industry. Affected for years by relocations and declining value added, it is now the sector most exposed to the social plans multiplying across the industry.

For the downstream segment, *l'Association Nationale pour la Formation Automobile*³ (ANFA) publishes an annual regional analysis. In Normandy, the downstream sector includes 23,552 employees and 6,578 companies. The vehicle fleet, made up of 2 million vehicles, has been increasing since 2021 after a slight decline in 2020. This growth mechanically leads to a rise in the average age of the fleet, which in turn increases maintenance activity.

2.2. A crisis with many faces

2.2.1. Economic and social dimensions

The health crisis accelerated an already ongoing process of relocation by manufacturers of a significant share of production capacity abroad, leading to a destructive dynamic: the sector slowed its hiring, causing an aging workforce and a loss of competitiveness in French sites. The end of this crisis coincided with another one, that of semiconductors, which resulted in major tensions in the supply chain.

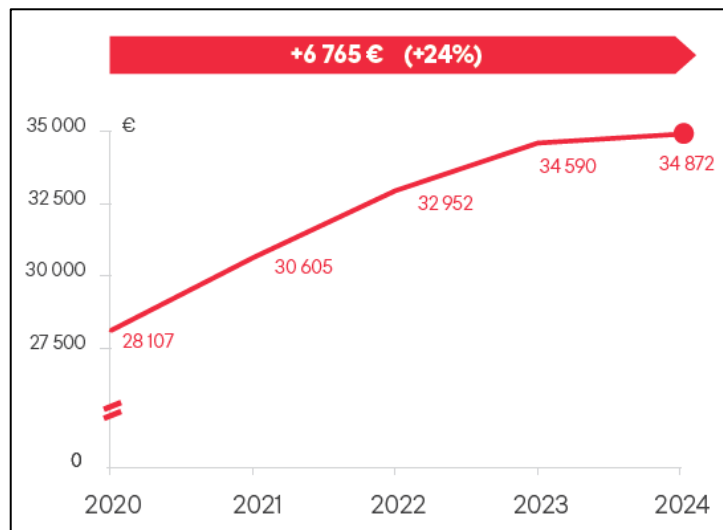
French sites managed these crises by resorting to short-time work and raising prices, which was made possible by a gap between supply and demand. Electric car prices followed this trend, with an increase of 6,765 euros in the price of new vehicles between 2020 and 2024.

Prices have risen, for both internal combustion and electric vehicles, for several reasons: higher energy and labor costs (6% of the increase), upmarket repositioning of new vehicles, and a "pricing power" strategy consisting in raising prices for a vehicle of the same size (4%). Added to this are "hybrid" causes, combining the effects of public policy and brand strategies. This is where the impact of the Corporate Average Fuel Economy standard appears, which imposes specific CO2 emission targets on manufacturers. The share of electric cars sold enables manufacturers to offset the general increase in the size of internal combustion vehicles, which mechanically raises GHG emissions. *L'institut Mobilités en Transition*⁴ thus estimates that "even though electric vehicles (16% of the mix) and plug-in hybrids (7%) have pushed up the average price, the major change in the energy mix is the replacement of diesel (30% of the market in 2020) by non-plug-in hybrids at an equivalent price."

³ An inter-branch organization representing the downstream automotive services sector

⁴ A French independent think tank on mobility transition

Evolution of list prices for new passenger cars, in euros.



Institut Mobilités en Transition.

These crises have permanently slowed the French market, as seen notably in the aging of the vehicle fleet. Extremely high inflation in recent years has also delayed vehicle purchasing decisions.

This evolution is the result of several factors mentioned above, to which must be added manufacturers' choice to launch electric vehicles from the premium end of the market, replacing affordable offerings such as the Renault Zoé with a more upscale model, the Renault 5 E-Tech Electric.

A point of caution concerns the environmental value of ever heavier models, which entail higher prices, heavier batteries, and increased particulate emissions.

Finally, a last element of the current automotive crisis is the uncertainty surrounding the resale price of electric vehicles, which creates uncertainty in the market and slows it down.

2.2.2. Geopolitical issues

In a globalized automotive sector, major international crises have significant repercussions for all stakeholders in the industry. The resurgence of conflicts, especially in Europe, will create strong tensions in supply chains. Russia's invasion of Ukraine on 24 February 2022 (which will be followed by the termination of trade relations with a number of countries) will cause a slowdown in global automotive production, because essential materials such as resin and carbon black came from Russia. The country is also a strategic supplier of palladium; a component used in semiconductor manufacturing.

In addition, refined neon — an essential component of the lasers used in chip manufacturing — was produced in Ukraine. The ongoing conflict thus risks increasing the prices of certain strategic raw materials. At the same time, oil prices rose sharply because of Russia's significant role as a global exporter.

The year 2025 was also marked by a trade war between the United States and China, creating an atmosphere of uncertainty and at least temporarily disrupting logistics chains. American companies then turned to Taiwanese and Korean suppliers, who were already producing at full capacity. As a result, demand for integrated circuits exceeded supply, causing shortages of certain products. Added to this trade tension were several disruptive events: a drought in Taiwan, interrupting integrated circuit production; Storm Uri in Texas; an energy crisis in China linked to rising coal prices; a fire in a factory in Japan; obstruction of the Suez Canal; and increased cryptocurrency mining, which requires the purchase of recent and powerful graphics cards.

To these cyclical factors must be added the increasing presence of electronics in many consumer goods — game consoles, phones, electronic devices, and cars — which will cause major tension in the supply chain.

The semiconductor crisis clearly illustrates the geopolitical and global dimension of the automotive industry: localized events trigger worldwide repercussions over a very long period. These consequences are both quantitative — in terms of the number of manufactured products — and qualitative, as seen in the modifications made to certain General Motors models to respond to the shortage of components.

China's dominant position in the metals and rare earth refining market also creates another risk for European manufacturers. By acquiring production sites in Europe and Morocco, China is seeking to circumvent the introduction of European customs duties. Moreover, China's central position — and, to a lesser extent, South Korea's — in the battery market gives it significant bargaining power with other industrial players. The difficulty of launching gigafactory projects in Europe is, in this respect, a major concern for the CESER.

It should be noted that these uncertainties also affect consumer behavior.

2.2.3. Regulatory pressures

Automotive regulations are tied to the evolution of the automobile itself. The first known regulation was introduced by Prefect Lépine in 1893: it lowered the maximum speed from 20 km/h to 12 km/h in built-up areas, introduced a driving competency certificate, and created the license plate.

Without attempting here to list all the regulations governing the automotive sector, it is preferable to focus on recent developments in the legislation affecting the industry's main actors.

These developments concern several areas: onboard safety (speed regulations still evolve regularly today, and safety equipment in cars is constantly being strengthened), and mandatory systems, especially driver-assistance systems. These obligations weigh on manufacturers and drivers alike.

- Regulations affecting manufacturers.

Recently, climate issues have driven changes in automotive regulation. The European Union, for example, introduced, as noted above, the ban on the sale of new internal

combustion vehicles by 2035, together with targets for reducing CO₂ emissions on average across a manufacturer's entire sales range. This decision, now the target of many criticisms, was preceded by an impact assessment to refine the criteria set out (see the description of the impact assessment in the technical report and the metrics in Annex 1).

The European Union has also adopted regulations setting maximum pollutant emission thresholds. These so-called "Euro" standards are intended to become stricter from one iteration to the next. It should be noted that Euro 7, which will enter into force in September 2026, introduces non-engine-related pollution factors, such as microplastic emissions from tires. Following the Euro model, China has adopted so-called China standards, which also aim to reduce CO₂ emissions.

The United States, for its part, has long adopted measures aimed at reducing passenger-car emissions. California plays a leading role in this area, having required manufacturers as early as 2004 to reduce pollution by 18 to 25 percent. Joe Biden's presidency provided an opportunity to tighten pollution standards to reduce emissions. American policy is nevertheless characterized by technological neutrality, leaving manufacturers free to choose the tools to conduct the transition. In the past, manufacturers have therefore been able to opt for lighter vehicles or improved engines. Similar regulations also exist on several continents. The "CAFE" regulation, introduced in the United States in 1975, sets an average CO₂ emissions threshold across manufacturers' entire product ranges. This regulation has also applied in the European Union since 2021. These obligations are accompanied by penalties for manufacturers that fail to meet the average thresholds, amounting to 95€ per gram of CO₂ and per vehicle above the regulated limit. This sanction mechanism has led to protests from representatives of the automotive industry. The automotive industry action plan adopted by the European Commission introduced three-year emissions flexibility for CO₂ calculations, making it possible to smooth the figures for manufacturers.

- Regulations targeting consumers.

In addition to these regulations applied to manufacturers, there are also schemes to support consumers. These forms of support have declined over the years. These reductions are systematically correlated with the fall in the number of vehicles sold.

For example, in France, the conversion bonus was available until 1 December 2024 but was not renewed because of the budget context for fiscal year 2025.

By contrast, the Annual Incentive Tax came into force on 1 March 2025: companies with fleets of more than one hundred vehicles are strongly encouraged to speed up electrification of their vehicles, with the aim of reaching 48% low-emission vehicles by 2030. This measure penalizes companies that fail to meet the thresholds set by law (15% in 2025, 18% in 2026, 48% in 2030). It was adopted in response to delays in meeting the targets previously set by law. It should be noted that, given the share of businesses in electric vehicle purchases, increasing this share will naturally lead to more electric cars becoming available to private buyers on the used market.

Norway, where the market share of electric cars approached 95% in 2024, has seen several phases of its incentive policy. After exempting electric car imports from taxes for years, this exemption was limited to vehicles priced below 500,000 Norwegian kroner (around 47,000 euros). It should be noted that Norway funds its costly program through the substantial revenue from its continuing oil and gas sales, as it is Europe's leading producer.

This reduction came after several years of measures favoring electric vehicles: free tolls, discounts on ferries and parking, the temporary ability to use bus lanes, and so on. The scaling back of the scheme had a very rapid effect on sales, with a 76.6% drop in electric vehicle sales in January 2023 compared with 2022. However, this figure is explained by an increase in purchases at the end of 2022 in anticipation of the reduced scheme, and a rebound effect seems to have occurred, given the 2025 figures, which exceed 90% electric car market share.

China, to increase the number of low-emission cars on its domestic market, had abolished the 10% purchase tax until 2014. The aid was nevertheless substantial, at 7,600 euros, supplemented by local support, notably free registration. China reserves subsidies for domestic companies, which led non-Chinese manufacturers to partner with national firms to create "joint ventures." Subsidies have been reduced since 2016, except for the purchase tax exemption until 2026, followed by a halving in 2027.

Automotive regulations evolve significantly from one budget year to the next, depending on the geopolitical context, states' political directions, and so on. Nevertheless, over time there has been a gradual reduction in direct purchase subsidies, which in turn translates into slower vehicle sales.

3. The automobile of tomorrow: between high technology and circular economy

3.1. Technological innovation, a lever for resilience in the Norman automotive industry

Normandy and Île-de-France regions account for 25% of France's automotive sector activity, with a strong industrial presence in Normandy and decision-making centers in Île-de-France. The ecosystem quickly structured itself, with the creation in 2006 of Mov'eo, a competitiveness cluster stemming from the Vestapolis and *Normandy Moteur Valley* poles. In 2019, Mov'eo merged with *l'Association Régionale des Industries Automobiles de Normandie et Véhicules en Ile-de-France*⁵. In 2021, the cluster formalized its transformation by adopting the name NextMOVE. Its action is

⁵ Regional automotive industry association for Normandy and automotive and mobility network in Ile-de-France

structured around two axes: innovation and business competitiveness, and it brings together automotive sector stakeholders.

NextMOVE supports sector players through thematic committees providing advice and assistance to companies, increasing their chances of securing funding. The cluster also has a training component, enabling business leaders and their teams to update their skills.

The car is a concentration of technology. Most of the technologies found in production models derive from innovations, such as driver assistance systems (white line detector, emergency braking, etc.). As such, the goal of developing autonomous cars supports the development of the entire automotive industry. Innovation is therefore inseparable from the automotive industry and an opportunity to maintain activity on the territory by betting on innovative technologies.

Rouen also temporarily implemented a mobility service with autonomous electric vehicles: Normandy Autonomous Lab, resulting from collaboration between Transdev, Rouen Normandie Metropolis, the Normandy Region, the Renault Group, and Matmut, as part of a European program. It offered an autonomous and connected taxi service within the metropolis. Although the project was abandoned, it remains a concrete initiative that demonstrates the feasibility of such a service. It illustrates that by supporting an experiment, a territory enables its companies to innovate.

Autonomous driving is classified into five distinct levels:

- 0 : no Driving assistance
- 1: certain functions assist the driver (anti-lock braking system, cruise control, etc.), but steering remains manual
- 2: partial driving autonomy, the system can manage acceleration, braking, and steering on certain roads
- 3: limited autonomous driving, the driver must be ready to take control in case of problems
- 4: near-complete autonomy, the vehicle can travel without a driver, but not on any road
- 5: full autonomy, without a driver and on any road

Today, very few level 5 vehicles are in circulation, except for taxi services in California and China. However, R&D in this sector is crucial because technologies developed to enable autonomous driving are gradually integrated into production vehicles (for example, sensors developed for 360° perception in autonomous vehicles enable emergency braking or blind-spot detection in production cars).

Normandy benefits from the presence of research centers dedicated to autonomous vehicles: NextMOVE collaborates with CEREMA and ESIGELEC, which, with its laboratory, is a key player in autonomous systems. The school is also a founding

member of the Vedecom institute, which works on Norman autonomous vehicles. Finally, startups based in the region are focusing on this issue.

After a major research phase in 2018-2019, enthusiasm for autonomous and connected cars appears to be waning today. The reasons for this slowdown are linked to the technological lag by manufacturers and the regulatory framework, which makes commissioning vehicles complex, as well as the cost of such technologies. These slowdowns must not justify abandoning innovation research: the automotive industry is intrinsically linked to innovation, and R&D progress helps maintain activity on the territory while accelerating the development of autonomous and connected cars.

3.2. The electric battery — an economic activity potential

3.2.1. The battery manufacturing, maintenance, and recycling sector

The shift to electric power has the particularity that a large part of the car is contained in the battery, which can account for up to 40% of the vehicle's weight and a significant share of its price.

The battery supply chain can only be understood by analyzing China's position, which has the most electrified vehicles in circulation (16 million in 2023), plus another 10 million vehicles in 2024 alone. In the first half of 2025, electrified cars (including electric and hybrid models) accounted for 50% of sales. This significant activity is explained by two factors: expertise stemming from China's years-long assignment to battery manufacturing, and overcapacity. Indeed, the domestic market quickly reached saturation, pushing Chinese manufacturers to turn to international markets, with the ability to offer more competitive prices compared to European and American players. This overcapacity concerns cars (2.1 times domestic demand and 1.2 times global demand) as well as batteries: Chinese production represents 150% of global demand.

This overproduction has led to a collapse in battery prices, resulting in electric cars priced below their internal combustion equivalents, which is a global exception.

As mentioned earlier, electric batteries require critical minerals (lithium, cobalt, etc.) and rare earths. In 2023, China accounted for over 69% of global rare earth mineral production. Once extracted, minerals must be separated, purified, and refined. China is the only country to conduct these stages (other producers selling their minerals to China for the final steps). Thus, a battery, even if assembled in Europe, is made of materials massively refined in China.

This gives China a dominant position in the global market, enabling it to decisively influence the European market: tariff hikes on cells or an offensive by Chinese players on European territory could deal a severe blow to the automotive market.

A number of gigafactories are being launched in France and Europe. Normandy failed to attract one to its territory, unlike Hauts-de-France. These companies, even if their start-ups are difficult, can offer real opportunities for our businesses, research laboratories, and employees.

Electric batteries are currently not recycled, due to the lack of a structured recycling chain. Indeed, the small number of electric cars in circulation does not allow an industrial recycling or reconditioning activity to be launched.

In addition, battery technology is evolving very rapidly: between Nickel Manganese Cobalt (NMC) batteries and Lithium Iron Phosphate (LFP) batteries. These two technologies have respective advantages and disadvantages: the first offers higher energy density, i.e., more power for less weight, while the second offers longer durability, lower cost, and easier recycling. Beyond the technologies, battery capacities are increasing to store and deliver more energy.

Finally, technologies continue to progress, with innovations currently in the testing stage. The next generation of batteries will use “sodium-ion” technology or “solid-state” batteries, which can deliver much more energy, with shorter charging times and less weight than current batteries. In this respect, European R&D capabilities are worth highlighting. Several startups are currently developing these batteries, and the European industrial support plan provides significant aid for batteries, both in research and scaling up.

Beyond recycling, it is appropriate to imagine a battery manufacturing chain that reduces polluting inputs. This is why European Union law established harmonized criteria for electric battery manufacturing as early as 2006. In 2023, a new regulation aimed at making the entire battery life cycle more sustainable was adopted, setting stages for new legislation up to 2036.

3.2.2. Charging infrastructure on Norman territory

Since the 1st of January 2023, Normandy had 706 charging stations distributed across 516 municipalities. Installation of stations was launched in 2015 by public stakeholders in the form of departmental electrification unions, coordinated within the *Territoire d'énergie Normandie*⁶ union. Their installation is progressing very rapidly, with annual growth of 30 to 40%. The opportunity for a public stakeholder to install a station is limited by the need to fill a private shortfall. Commercial players install stations in places frequented by the public, especially shopping centers. Public stations are therefore mainly found in rural areas and medium-sized urban centers.

This installation method provides sufficient coverage of Norman territory, combining private and public initiatives, as well as home and workplace charging options. However, several problems arise from this organization: first, the areas where unions can install stations are by nature less profitable than those installed by private players. Yet the revenue from these stations funds the unions' budgets. Mandatory installation in less profitable areas therefore makes amortization difficult.

⁶ Normandy Energy Territory, a regional network of local energy authorities

This funding model also has a limit: beyond a certain budget, the union must become an Industrial and Commercial Public Establishment (EPIC), which requires compliance with budgetary requirements, particularly balanced budgeting⁷.

In addition to these difficulties, the issue of station maintenance and replacement falls to the unions. Technological progress in electric cars sometimes requires replacing stations with more advanced ones.

Furthermore, electrification unions are subject to the public procurement code, which entails additional costs and constraints. This regulation prevents them from responding to private calls from tenders and obliges them to purchase electricity on the energy market at fixed deadlines (one or two times a year) without guarantee of getting the best price. Yet the construction of this market overvalues electricity prices because they are indexed on gas. Public stations thus become more expensive than those from private initiatives. Finally, the latter responds to different logics: installing stations near a shopping center minimizes the electricity selling price because this activity becomes accessory to the consumption site. Moreover, large retailers are more flexible in their purchasing strategy. To reduce costs, electrification unions occasionally pool their purchases on specific subjects.

Norman territory therefore has enough stations. Assessing their usage is complex because the increase in electric vehicles dilutes individual usage per station. Thus, the metric retained by the unions is the number of vehicles per station. The rate in Normandy fluctuated between 11 and 12 in 2024. The unions note that the failure rate is characterized below 10 vehicles per year.

Alongside these issues are very concrete questions for users. Indeed, installing charging stations in condominiums to enable home charging comes up regularly. It should be noted that this situation has evolved since 2017, with the obligation to pre-equip spaces for future electric use. Moreover, co-owners benefit from a "right to the plug," which can result from an individual decision (in which case installation is at their expense) or a collective one (in which case, the management company must include a study to estimate the cost of the work on the agenda of the general meeting). However, these facilities for co-owners effectively exclude tenants, who are numerous in collective housing.

In cases where it is impossible to install a charging outlet in a shared area, a new issue arises inequality of access to charging citizens. Indeed, while charging on a domestic network is low-cost because of the electricity tariff, charging at an external public or private station is much more expensive.

3.3. Toward a Norman automotive sector focused on circular economy

⁷ Under French law, a public industrial and commercial establishment (EPIC), even though it is established by a public authority, employs private-sector employees and is required to operate under the commercial rules applicable to private undertakings, to avoid any distortion of competition.

Circular economy is seen by sector players as a strategic and structuring activity in the automotive industry. Indeed, it enables the integration of reduced environmental footprint as well as the creation of new local industrial chains emerging from new practices (battery repair, vehicle recycling, battery reuse, etc.).

It should be noted that circular economy principles are also integrated into applications: reducing GHG emissions will involve both building new, smaller, less polluting models and adopting eco-gestures by drivers.

The CESER particularly calls for the development of a reuse sector. Indeed, if electric car batteries are no longer suitable for this use once below 80% capacity, they can be reused for other stationary applications, particularly intermittent energy storage in buildings. This new activity requires training, certifications, and circular logic.

Before reusing, it is also relevant to consider the repairability of batteries and vehicles. Long considered unrepairable because of their cell composition, often grouped together and inseparable or glued to car chassis, repair options have multiplied in recent years. Some companies, such as *Révolte*, a French garage network, have specialized in replacing damaged cells within a battery pack. Drawing inspiration from these experiments would significantly extend vehicle lifespan.

This would also enable regional SMEs to position themselves in circular niches (particularly repair, recycling, etc.). Finally, developing a reconditioning and reuse chain for batteries that have lost charge, which can be reused particularly for stationary energy storage, would be a major source of economic development. These circular economic logics can moreover provide a partial and local response to the supply chain crises facing the sector.

Retrofitting, which consists of converting an internal combustion vehicle to electric, can be one way among others to contribute to transport decarbonization, by reusing operational but end-of-life car structures and adapting the powertrain. Structuring this scheme would enable the creation of companies on Norman territory and the specialization of workers in vehicle reuse and reconditioning. In this respect, retrofitting allows the separation of economic activities to specialize workers in certain tasks.

Finally, it would be appropriate to reflect on car usage: solutions such as car sharing, for example, would reduce difficulties linked to public transport. Adopting a global vision of the sector then becomes necessary and would enable all stakeholders to adopt a new mindset starting from usages.

4. CESER recommendations

4.1. Safeguard and support the local industrial ecosystem.

The State strives to support economic and industrial activity on the territory, notably through the mobilization of classic *Bpifrance* schemes or tools from various recovery plans. However, there remains a knowledge gap regarding the situation: it is striking

to note that when exchanging with the *Direction Régionale de l'Economie, de l'Emploi, du Travail et du Social, la DREETS*⁸, the CESER only has approximate estimates of the number of companies linked to the automotive sector. If obtaining precise data remains complex because of the very nature of these companies' activities (mainly subcontractors), better identification and regular monitoring of these players appear essential to adapt public policies and effectively support sector development.

The CESER recommends that *DREETS* conduct an exhaustive inventory of the automotive sector, including the listing of companies directly or indirectly linked to this industry, as well as an analysis of supply chain vulnerabilities, to enable optimal adjustment of support and assistance measures.

The crisis facing the automotive sector is not recent. In an objective of relaunching the sector, it is essential first to protect companies. They face multiple difficulties: increasingly complex customer relations, weakening bank support to ensure short-term operations or fund new markets and technologies, etc. Mobilizing regional schemes would address these challenges.

The Norman automotive industry consists of major manufacturers acting as "locomotives" for the economy. It is imperative to support these companies to preserve the Norman industrial ecosystem through funding research programs, setting up experiments, or tailored training plans.

The CESER calls on the Region, based on the *DREETS* inventory, to adopt an initiative-taking approach toward Norman players, whether clients or subcontractors, via existing schemes managed by the Normandy Development Agency (Impulsion Conseil, Normandie Participatory Loans, Impulsion Productive Investment, Impulsion Environment, etc.).

The CESER particularly invites the Region to mobilize the new Normandie Carbone scheme to diagnose and support the development of decarbonization strategies for territory-based companies.

The CESER proposes the creation of a specific fund dedicated to the adaptation needs of tier 1, 2, and 3 subcontractors (with tools to be adjusted according to cases).

The CESER also recommends setting up a scheme specific to the automotive sector, led by *l'Agence de Développement pour la Normandie*⁹. It would aim to support the development of new products to replace current markets.

In line with its orientations to combat business failures, the Region mobilizes its schemes, particularly *Anticipation Redressement Mutations Economiques*¹⁰, to identify struggling companies and support them in

⁸ Regional Directorate for Economy, Employment, Labor, and Social Affairs, the regional prefecture service responsible for implementing central government policy at regional level

⁹ The agency for Norman's development, a regional agency in charge of managing part of the Region's economic aid schemes

¹⁰ A regional tool which prevents mutations and business failure

building strategies. The CESER calls on the Region to pay particular attention to the automotive sector.

To ensure the continuity of automotive industrial activity, the sustainability of companies must be guaranteed, particularly through their transmission. In its role as lead for economic development, the Region has a part to play in supporting the entrepreneurial fabric. In the automotive sector, this issue particularly concerns garages and tier 2 and 3 suppliers. The latter are not always micro-enterprises and have an enterprise value too high to be taken over by a simple individual without third-party support (co-investor, fund, or bank).

The CESER emphasizes the need to actively support business transmissions to preserve knowledge and skills on the territory. It calls on the Region to support garages and tier 2 and 3 companies more specifically in organizing their succession.

4.2. Anticipate the transformation and internationalization of the sector.

A manufacturer sets up where it can rely on a network of suppliers capable of ensuring its supply. In this context, as battery production is only just beginning to structure itself in Europe, it is important to anticipate future implantations of these companies, considering manufacturers' choices, who install as close as possible to consumption basins. These in turn attract suppliers and subcontractors for electric mobility and vehicle assembly, several of whom already have clients based in Normandy, historically linked to internal combustion powertrains. Normandy has significant assets in this respect: Renault Cléon, manufacturer of electric motors, knowledge still present in Normandy, and decarbonized energy sources.

The CESER invites the Region to capitalize on Norman assets (major industrial sites, decarbonized energy sources, skilled workforce, and R&D centers) and to undertake outreach to foreign companies wishing to set up near battery manufacturing plants under construction.

Some Norman companies have developed an export strategy for part of their activities, particularly supplying inputs for industry, such as oil or lubricants. This orientation enables them to maintain a territorial anchor in Normandy while ensuring satisfactory profitability. Moreover, not all countries apply environmental regulations at the same speed or with the same tools. In this context, internal combustion cars should continue to exist, particularly for the billion individuals expected to join the global middle class by 2050. This will continue to mobilize the entire automotive parts production chain.

Maintaining activity on Norman territory can involve identifying new markets outside Europe to sell products made in Normandy. The CESER therefore recommends that the Region intensify mobilization of regional export

support schemes such as Impulsion Export, Panorama Xport, and Accélérateur Xport¹¹.

4.3. Develop a territorial offer and value chain adapted to new usages.

The installation of charging stations is progressing rapidly across the entire territory today. The service is structured around departmental electrification unions. While the electric vehicle market in France is difficult to launch, particularly because of high car prices combined with the end of purchase aids, these unions are unanimous on enough public charging stations on the territory. Thus, most Normans can charge their cars at home, and public and private stations are also sufficiently numerous.

The CESER notes that Norman electrification unions agree on sufficiently dense territorial coverage. However, given the technological evolution of electric vehicles and the mechanical aging of stations, it calls on the operators responsible for their management to maintain vigilance in terms of maintenance but does not recommend installing new stations. Building an ecosystem of maintenance companies would meet needs for spare parts and training.

Fears of battery failure are still very present in people's minds, and daily car use also assumes the occasional possibility of long trips. On this point, fast-charging stations are multiplying, particularly around major highways. This network requires particular attention because consumer expectations are particularly high on this issue.

The CESER calls on the Region to lead a dialogue between public and private players to coordinate investments in fast-charging stations, particularly on major highways, to meet user demand for occasional long trips.

As part of a public service mission, public station operators can only intervene if they do not distort competition. As a result, private operators today mainly manage the most profitable stations, while the public network ensures coverage in less dense areas, where profitability is lower. Unions can only intervene in the event of a private initiative shortfall and must comply with the public procurement code: drafting calls for tenders, competing providers, etc. These standards limit both the competitiveness of offers and the ability to favor Norman or French companies.

Moreover, electrification unions adopt different purchasing logics. While some purchases are occasionally pooled, the vast majority are not, whether for stations or electricity. In addition, unions purchase electricity twice a year at market price. This operating method once again creates distortion compared to private sector practices, which can buy massive quantities of energy throughout the year.

¹¹ Support schemes aimed at encouraging companies to strengthen their export strategies, with a particular focus on SMEs and mid-caps

The CESER observes that today, orders are mostly awarded to European or French players. The question of implanting European or Asian players on the territory, like automotive manufacturers, deserves examination.

The coexistence of private and public charging networks poses a major long-term risk for the least profitable areas: public management would be confined to the least attractive territories, potentially leading to the gradual withdrawal of stations and, consequently, a significant deterioration in overall territorial coverage.

The development of private supply puts the economic model of electrification unions to the test by reserving for them the stations in the least profitable areas.

In the short term, the CESER invites Norman electrification unions to develop a strategy for pooling their resources among the various players. Coordinated by a dedicated structure, this approach would ensure greater coherence in regional policy and optimize purchasing procedures, both for equipment and energy.

Beyond this issue, the question of financing charging systems in low-profitability areas and maintaining a sufficient network across the territory arises. The CESER alerts the Region to the need to guarantee sufficient charging coverage for all citizens in the long term, given the risk of gradual disappearance of the least profitable stations. It also invites the Region to engage in dialogue with other Regions to jointly raise this vigilance with the government.

4.4. Promote decarbonization, innovation, and technological diversification.

The sector's transition will involve a multiplicity of means. Today, Norman initiatives aim to enable this transition but face administrative, regulatory, and financial constraints.

Retrofitting consists of replacing certain components of a car with more recent elements, particularly by changing the technology. For example, it is possible to retrofit an internal combustion car into an electric model. Several initiatives today demonstrate that technology is available, and costs could decrease significantly with larger-scale production. Beyond homologation difficulties and still relatively unaffordable prices, experiments conducted on Norman soil have encountered various difficulties, notably due to lack of funding. This is, among others, the case of Lormauto, which offered retrofitting solutions and whose venture ended due to a funding refusal by Bpifrance. Without knowing all the details, it seems paradoxical to see a startup implementing a solution integrated into the circular economy, enabling compliance with regulatory greening targets for fleets, denied long-term support.

Moreover, offers to retrofit from internal combustion to electric are still limited in Normandy today. While reprogramming engines for bioethanol conversion has become widespread on the territory and remains financially accessible, retrofitting to

electric remains marginal and offered to professionals by a handful of companies, notably for utility vehicle conversions.

However, retrofitting represents a complementary lever for car fleet decarbonization. As such, it appears appropriate to support the emergence of a genuine retrofitting sector. The Region could, in this respect, determine the forms of support to mobilize and the target audiences, whether professionals or individuals.

The transition to electric cars must rest on a diversified set of solutions. Retrofitting, still little known to the public, is fully part of this but suffers from a lack of visibility. The CESER thus invites the Region to set up a retrofitting support scheme, whether to accompany the electrification of private cars or the conversion of company fleets. At the same time, it recommends strengthening communication on existing schemes to promote awareness and implementation of this solution on the territory.

Moreover, electric and internal combustion powertrains each have specific advantages and limitations. If long-distance transport does not seem suitable for electricity today, certain heavy vehicle uses demonstrate undeniable assets: absence of noise, improved driving comfort, etc. As such, Renault Trucks' strategy, which has adapted its industrial tool to market evolution by making flexibility a differentiating factor, and Norman or Breton companies adapting trucks for specific uses, are assets for our territory.

The CESER calls on the Region to support all players involved in modernizing and adapting heavy vehicles, and to set up a specific action plan to promote their development as well as that of their ecosystem. This production method, difficult to relocate, represents added value that should be consolidated on the territory.

The automotive industry encompasses upstream and downstream activities. The automotive services branch will inevitably undergo changes linked to electrification on the one hand, and to vehicle fleet evolution on the other. Indeed, an electric car requiring around 60% less maintenance than an internal combustion vehicle because of fewer parts, demand for labor will mechanically decline. The decline of diesel accentuates this trend. If the age pyramid in services suggests a transition that can take place via gradual retirements, anticipating needs remains essential.

The CESER invites the Region to remain vigilant regarding the evolution of this sector, notably by helping companies adopt a Jobs and Career Paths Management strategy on the one hand, and by maintaining and strengthening a training offer adapted to sector changes on the other. In this respect, the CESER encourages the Region to continue its exchanges with Skills Operators, who can play a advisory and upskilling role for affected employees.

Low-carbon liquid or synthetic fuels (for example, Sustainable Aviation Fuels or SAF for aviation), although currently presenting drawbacks (remarkably high prices, massive investments), have the advantage of being compatible with existing fleet internal combustion powertrains, as well as distribution logistics (pipelines, storage depots, service stations). They should therefore not be ruled out a priori. In-depth analysis of

their potential could reveal their value in reducing the impact of internal combustion vehicles that will continue to be used.

The shift from internal combustion to electrification must integrate all available technological solutions. The CESER calls on the Region and Norman players to conduct a study on the opportunity to support alternatives such as synthetic fuels, to accompany the reconversion of companies still dependent on these technologies.

Transforming a sector necessarily implies adaptation to ecological imperatives. It is therefore appropriate to promote the emergence of activities based on circular economic principles. Reflection around battery reuse must be encouraged and supported to ensure the establishment of a sustainable and virtuous model.

The CESER invites Norman players to anticipate the creation of a regional chain dedicated to battery reuse. However, it draws attention to the necessary vigilance against diversion of the scheme that would favor new battery production over reuse of those no longer suitable for automotive use.

Finally, the automotive industry is intrinsically linked to innovations. Today, this sector is undergoing a new phase of evolution, notably with the growing integration of electronic components and driver assistance systems. In this dynamic, developing autonomous cars seems a strategic objective for the sector.

Given the research centers and synergies present in Normandy and Île-de-France, the region has major assets to play a leading role. The presence of major highways also enables innovative practices, such as inductive charging for trucks on roads.

The national automotive sector support plan of 4 March 2025 moreover provides for the implementation of regulatory corridors dedicated to experiments, opening significant prospects for Norman players.

However, the autonomous vehicle market and associated technologies have already seen many failures, due to a lack of adapted funding systems and insufficient state-supported experimentation schemes.

Developing autonomous cars will take time to mature and grow on Norman territory. The CESER calls on the Region to leverage European automotive sector support schemes to position Normandy as a benchmark territory for experimentation and innovation.

4.5. Shared governance and collective mobilization of the sector

The automobile occupies a main place in our contemporary societies. However, climate disruption and sobriety imperatives require rethinking our mobility: carsharing, modal shift, public transport, etc. Studies on car usage highlight major trends that

invite reasoning based on real user needs rather than the current vehicle offer on the market. In this perspective, developing a small, low-range car adapted to daily trips could meet the needs of a significant share of drivers.

In a region historically linked to the automotive industry, it appears essential to launch a collective reflection at sector level. Like the Grand Est Region, which organized automotive sector general states, Normandy could draw inspiration from this approach to anticipate forthcoming transformations and identify priority action levers to create new jobs.

The CESER thus invites the Normandy Region to organize automotive sector general states, bringing together all concerned stakeholders. Such an initiative would foster constructive collaboration of skills, shared strategies, and concerted preparation for industrial and territorial futures.

The Region, under its transport competence, has leverage on the territory. Electrifying Region-managed transport would both reduce the regional carbon footprint and stimulate the electric mobility market. This approach, easier to implement in areas managed directly by the Region, can nevertheless also be put in place under a public service delegation.

The Region, competent to organize the electrification of public transport, has a key role in the sector's energy transition. The CESER recommends that it resolutely engages in this transition by promoting the electrification of directly managed transport, supporting providers in necessary adaptations in the event of public service delegation, and playing a territorial animation role to support the electrification efforts of collective transport managed by Norman EPCI.

The Mobility Orientation Law of December 24, 2019 redefined mobility governance around the Region-intercommunal structures partnership. The latter can exercise the competence for organizing sub-regional mobility by becoming Mobility Organizing Authorities (AOM). In Normandy, four communities of communes have chosen not to exercise this competence, effectively transferring it to the Region: *Isigny-Omaha Intercom*, the *Seulles Terre et Mer Communauté de Communes*, the *Terre d'Auge Community of Communes*, and the *Pays Fertois et Bocage Carrougien Communauté de Communes*.

The CESER reaffirms its support for the development of public transport adapted to the real mobility needs of Normans, whether for commuters or occasional trips. This requires densifying the offer, particularly in peri-urban, interurban, and rural areas, to guarantee greater accessibility and sustainable mobility for all.

The issue of mobility must not be confined to sector players. Therefore, it is appropriate to involve all of society: users, consumer associations, professional and union representatives, etc.

Normandy Region adopted its mobility plan in 2017. This document enables it to enter contracts with local players and contribute to funding transport offers. It thus

constitutes a strategic tool guiding the development of public transport services across the entire regional territory. It represents an opportunity to reduce our carbon impact and create new jobs.

It also encourages the Region to enrich its mobility plan in cooperation with Norman EPCI to accelerate electric mobility development and promote the unlocking of certain territories through innovative actions.

Mobility policies must closely articulate with urbanization dynamics. Like other Regions, the CESER calls on the Normandy Region to organize a mobility convention in Normandy to collectively define forthcoming orientations in this field.

Given the possible evolution of regulations, whether deadlines, timelines, or mobilized schemes, the Region has essential levers: as a territorial authority, manager of European aid, and territorial animator, it is positioned to leverage its assets with national, European, and local players to promote coherence between Norman initiatives and the achievement of climate objectives.

Beyond these necessary anticipations, the CESER encourages the Region to assert a political role, based on education and negotiation, at national and European levels, to advance vehicle and electric battery reparability requirements.

CONCLUSION

The Norman automotive industry is going through a critical phase that threatens its survival, as well as that of all the sectors dependent on it—either because they supply it with products or because they rely on it economically (refineries, petrochemicals, plastics industry, etc.), directly or indirectly.

For several years now, crises have been multiplying. The ongoing transition to new powertrains, particularly electric, is not the sole cause of these upheavals: the end of diesel powertrains in Europe since the 2014 scandal, the weakening of European manufacturers during the health crisis, the overall reduction in labor needs across the sector, production line automation, or the relocation decisions toward low-cost countries have durably undermined the industrial ecosystem. The European deadline of 2035 has moreover accelerated many strategic decisions by major groups regarding their industrial footprint on the continent.

In this context, electrification represents both an additional shock for the industry and an opportunity. It is a chance to relocate part of production and to rethink mobility across Norman territory.

To meet this challenge, the Normandy Region must mobilize all the levers at its disposal and assert its role as a political driving force, intervening with national and European bodies to defend the territory's industrial interests and support its transition toward a sustainable model.

The first urgency is to safeguard what exists on the territory, because once all production units are relocated out of Normandy, rebuilding a sector appears impossible, given how much the automotive industry relies on tight interdependence between its various chains. While internal combustion and electric powertrains differ greatly, many parts remain common (seats, dashboard elements, pedals, etc.) and can therefore continue to be produced in Normandy without requiring major transformations. These companies are the tier 1, 2, and 3 subcontractors of the major clients.

The second imperative is to leverage Normandy's unique assets. The automotive sector, a historic industry of the territory, has contributed to launching numerous projects, developing expertise, and creating synergies that can now be supported and enhanced. The CESER emphasizes that meeting regulatory targets must involve a diversity of solutions already present on the territory. In this respect, solutions like retrofitting deserve encouragement, both through support for the schemes themselves and through strengthened communication toward stakeholders and the public. The heavy goods and utility vehicle sector, very present in Normandy, is also an example to follow given its innovative practices, particularly regarding customization of production lines.

Finally, the 2035 deadline, set for the end of internal combustion powertrains, fits into the broader goal of achieving carbon neutrality by 2050, whose success will depend on the joint mobilization of all stakeholders: manufacturers, public actors, businesses, and users.

In summary, the Ceser's recommendations regarding the Norman electric automotive sector:

Recommendations	Recipients	Time frame
Preserve and support the local industrial ecosystem		
Comprehensive mapping by the DREETS of companies directly or indirectly linked to the automotive industry, and analysis of vulnerabilities along the value chain, to enable an optimal adjustment of support and assistance schemes.	DREETS	Medium term
Adopt a proactive approach towards stakeholders in Normandy, relying on existing schemes managed by ADN, particularly the "Normandie Carbone" mechanism.	ADN	Short term
Set up a dedicated fund to support the adaptation needs of tier-1, tier-2 and tier-3 suppliers.	Normandy Region	Medium term
Implement a scheme specifically targeting the automotive sector to support the development of new products to replace current markets.	Normandy Region	Medium term
Ensure strong mobilization of mechanisms designed to prevent business failures, particularly the ARME scheme.	ADN	Short term
Actively support business transfers, with specific assistance for garages and tier-2 and tier-3 companies.	ADN	Short term
Anticipate the transformation and internationalization of the sector		
Promote Normandy's assets (major industrial sites, low-carbon energy sources, skilled workforce, R&D centers) in prospecting activities aimed at foreign companies wishing to locate near the battery manufacturing plants now being brought into operation.	Normandy Region	Medium Term
Step up the mobilization of export-support schemes for the automotive industry.	ADN	Short term
Develop a territorial offer and value chain suited to new uses		

Although standard (non-fast) charging infrastructure is sufficiently deployed across the territory, close attention must be paid to the maintenance of these charging points.	Electricity syndicates, Normandy Region, intermunicipal authorities	Long term
Lead a dialogue between public and private stakeholders to coordinate investment in fast-charging stations, to meet the needs associated with occasional long-distance travel.	Electricity syndicates, motorway operating companies, etc.	Medium term
Design a strategy to pool the resources of the electricity syndicates, coordinated by a dedicated structure, to improve the consistency of regional policy and optimize purchasing.	Electricity syndicates	Short term
Examine the need to guarantee sufficient charging coverage, which may be threatened by the question of long-term financing for public charging stations.	Electricity syndicates, Normandy Region	Long term
Promote decarbonisation, innovation and technological diversification		
Establish a support scheme for vehicle retrofitting and step up communication on existing schemes, to improve awareness and uptake of this solution.	Normandy Region	Medium term
Support all stakeholders involved in the modernization and adaptation of heavy vehicles and adopt a specific plan to foster their development.	Normandy Region	Medium term
Support the introduction of workforce planning and development (GEPP) in service companies and strengthen the training offer.	Normandy Region	Long term
Carry out a study on the opportunity to support alternatives such as synthetic fuels, to accompany the transition of companies still dependent on these technologies.	Normandy Region, automotive industry stakeholders in Normandy	Long term

Proactively prepare the creation of a regional sector dedicated to battery reuse and second life.	Normandy Region, automotive industry stakeholders in Normandy, circular-economy actors	Medium term
Leverage European support schemes for the automotive industry to position Normandy as a leading territory for experimentation and innovation.	Normandy Region, automotive industry stakeholders, R&D centers	Medium term
Shared governance and collective mobilization of the sector		
Organize a general convention for the automotive sector to foster synergies, build shared strategies and jointly prepare for the industrial and territorial future.	All stakeholders in the Normand automotive sector	Medium term
Coordinate and support the electrification of public transport operated by Norman inter-municipal authorities, as well as those managed directly by the Region or delegated to operators.	Normandy Region, Norman inter-municipal authorities	Medium term
Reaffirm support for the development of public transport adapted to the actual mobility needs of the people of Normandy.	Normandy Region, transport industry stakeholders	Long term
Further develop the regional mobility plan, in cooperation with Norman inter-municipal authorities, to accelerate the roll-out of electric mobility and reduce the isolation of certain territories.	Normandy Region	Medium term
Organize a Normandy mobility convention to collectively define future directions in this field.	Normandy Region	Medium term

Assert the Region's political role at national and European levels to strengthen requirements on the repairability of electric vehicles and batteries.	Normandy Region	Long term
--	-----------------	-----------

Bibliographie

Articles

ADEME, [Mondial de l'automobile : l'ADEME publie son avis sur le véhicule électrique : une batterie de taille raisonnable assure une pertinence climatique et économique - Agence de la transition écologique](#), 12 octobre 2022

Auto Infos, [L'usine ACC livre ses premières batteries à la 3008 électrique de Stellantis](#) – 10 janvier 2024

Automobile propre, [Record : en Chine, les voitures électrifiées ont représenté une vente sur deux en juillet](#), 8 août 2024

Automobile propre, [Comment la voiture électrique dépasse 90 % de part de marché en Norvège ?](#) – 9 décembre 2024

Automobile propre, [Les voitures électrifiées continuent à doper le marché automobile chinois](#) – 25 juillet 2025

Automobile magazine, [Droits de douane : l'Allemagne sauve son auto \(mais pas ses comptes\) pendant que la France paye l'addition](#) – 31 juillet 2025

Autonews, [Orange : le partenaire invisible de la voiture connectée](#) – 12 mai 2025

Bloomberg, [China's Batteries Are Now Cheap Enough to Power Huge Shifts - Bloomberg](#) – 9 Juillet 2024

Caradisiac, [En Norvège, que se passe-t-il depuis la fin des aides à l'achat de voitures électriques ?](#) – 23 mars 2023

Journal de l'Auto, [Les 10 points marquants du marché automobile en juin 2025 : six mois dans le rouge](#) – 1^{er} juillet 2025

La Tribune, [Bernard Favre : "La voiture autonome n'arrivera pas avant 2040"](#) – 11 septembre 2019

Le Monde, [Comment la Chine domine l'industrie automobile, au point d'être copiée par les constructeurs occidentaux](#) – 23 avril 2025

Les Echos, [Voitures électriques : surdimensionnées, les usines chinoises tournent au ralenti | Les Echos](#) – 18 août 2024

Les Echos, [Voitures électriques : surdimensionnées, les usines chinoises tournent au ralenti | Les Echos](#) – 19 août 2024

Les Echos, [Mobilité décarbonée : les entreprises soutiennent le marché des véhicules électriques | Les Echos](#) – 26 septembre 2025

Pressecitron, [Ukraine : pourquoi l'invasion Russe va empirer la pénurie de puces](#) – 25 février 2022

Région Ile de France, [Véhicules : la Région mise sur la conversion des moteurs thermiques avec une « Prime à la non-casse » | Région Île-de-France](#) – 30 janvier 2025

The Detroit News, [Chip woes: GM eliminates start/stop feature on some trucks, SUVs](#) –

Rapports

ADAC, [ADAC Pannenstatistik 2025: Sind Elektroautos zuverlässiger?](#) – 10 avril 2025

AVERE France, [\[Etude\] L'Avere-France, ATEE et Wavestone explorent les enjeux des vies de la batterie des véhicules électriques - Avere-France](#) – 14 octobre 2024

Arval Mobility Observatory, Baromètre des flottes de la mobilité 2025

Autofocus, étude de l'observatoire des métiers des services de l'automobile – février 2025

Carbone4, [Les idées reçues sur la voiture électrique](#) – 24 juin 2025

Carbone4, [Retrofit de véhicules : quel potentiel pour la décarbonation du secteur des transports ?](#) – 2 septembre 2024

Centre d'Observation de la société, [L'usage de la voiture plafonne en France - Centre d'observation de la société](#) – 8 avril 2024

CESER – Comment améliorer les mobilités du quotidien ? Mai 2019

A. DEPROUW, D. GAILLARD, L. ROUQUETTE, V. SIVELLE, M. PERRILLON in Extensio Innovation Croissance, Rapport annuel – 2022

Direction Générale des Entreprises - [Décarbonation : lancement d'un plan d'action national en faveur du retrofit | Direction générale des Entreprises](#), avril 2023

IEA, [Electric car models available globally and average range, 2015-2020 – Charts – Data & Statistics - IEA](#) – 30 avril 2021

IEA, [Global EV Data Explorer – Data Tools - IEA](#)

Impact assessment – proposal for a regulation of the European parliament and of the council settings emission performance standards for new passenger cars and for new light commercial vehicles as part of the Union's integrated approach to reduce CO2 emissions from light-duty vehicles and amending regulation n° 715/2007 – COM(2017) 676 final, 2017

Institut des Mobilités en Transition, Le vrai du faux sur les causes de l'augmentation des prix des véhicules entre 2020 et 2024 – Mai 2025

Ministère de l'aménagement du territoire et de la transition écologique, [Tout savoir sur le retrofit électrique | Ministères Aménagement du territoire Transition écologique](#) – 20 octobre 2020

Mobilians, Avere France, baromètre trimestriel des voitures électriques d'occasion – 17 avril 2025

Observatoire de la métallurgie, Impacts de la construction automobile sur l'emploi et les compétences – Avril 2021

Polytechnique insights, [La Chine en situation de monopole sur les terres rares](#) – 29 janvier 2025

Région Normandie – Plan de mobilité et schémas de développement

SDES, [39,3 millions de voitures en circulation en France au 1er janvier 2024 | Données et études statistiques](#), 23 septembre 2024

SDES, [Comment les Français se déplacent-ils en 2019 ? Résultats de l'enquête mobilité des personnes | Données et études statistiques](#) – 16 septembre 2020

Transport et Environnement - [Les hybrides rechargeables émettent cinq fois plus de... | T&E France](#) – 10 septembre 2025

Xerfi, EDEC Automobile 2025, Etude prospective et Compétences – Juin 2025

Règlementation

Article 121-3 du Code de la Route

Article L224-8 Code de l'Environnement

Article D251-1 à 251-5-3 Code de l'énergie

Directive 2006/66/CE du Parlement Européen et du Conseil du 6 septembre 2006 relative aux piles et accumulateurs ainsi qu'aux déchets de piles et d'accumulateurs et abrogeant la directive 91/157/CEE

Convention de Vienne du 8 novembre 1968 sur la circulation routière

Loi Energie Climat du 8 novembre 2019

Loi Nouvelle Organisation Territoriale et de la République du 7 août 2015

Loi d'Orientation des Mobilités du 26 décembre 2019

Ordonnance n° 2021-443 du 14 avril 2021

Règlement 2019/2044 du Parlement Européen et du Conseil du 27 novembre 2019 relatif aux prescriptions applicables à la réception par type de véhicules à moteur de leurs remorques, ainsi que des systèmes, composants et entités techniques distinctes

destinés à ces véhicules, en ce qui concerne leur sécurité générale et la protection des occupants des véhicules et des usagers vulnérables de la route

Règlement 2024/1610 du Parlement et du Conseil du 14 mai 2024 relatif aux normes de performance en matière d'émissions de CO₂ pour les véhicules utilitaires lourds neufs et intégrant des obligations de déclaration

Règlement 2023/1542 du Parlement européen et du Conseil du 12 juillet 2023 relatif aux batteries et aux déchets de batterie

Table des matières

Summary	3
Composition of the 4 th Commission.....	4
Composition of study committee.....	5
Hearings and acknowledgements	6
Preface: A sector in crisis with deep roots	11
1. Common misconceptions about electric vehicles	13
2. Industry in crisis	20
2.1. The French and Norman automotive industry	20
2.1.1. The French automotive industry.....	20
2.1.2. Normandy, an automotive region in crisis	22
2.2. A crisis with many faces.....	23
2.2.1. Economic and social dimensions	23
2.2.2. Geopolitical issues.....	24
2.2.3. Regulatory pressures	25
3. The automobile of tomorrow: between high technology and circular economy....	27
3.1. Technological innovation, a lever for resilience in the Norman automotive industry.....	27
3.2. The electric battery — an economic activity potential.....	29
3.2.1. The battery manufacturing, maintenance, and recycling sector.....	29
3.2.2. Charging infrastructure on Norman territory.....	30
3.3. Toward a Norman automotive sector focused on circular economy	31
4. CESER recommendations	32
4.1. Safeguard and support the local industrial ecosystem.	32
4.2. Anticipate the transformation and internationalization of the sector.	34
4.3. Develop a territorial offer and value chain adapted to new usages.	35
4.4. Promote decarbonization, innovation, and technological diversification.	36
4.5. Shared governance and collective mobilization of the sector	38
CONCLUSION	40
Bibliographie.....	48
Table des matières.....	52

Ban on internal combustion engines in Europe: what are the prospects for the Normandy automotive industry?



The Norman automotive sector is going through a major crisis, accelerated by European measures affecting internal combustion engines by 2035 and the push toward carbon neutrality by 2050. Between relocations, declining employment, and Asian competition, the future of the sector depends on collective mobilization.

To address this multifactorial crisis, the CESER calls for preserving the industrial ecosystem. Normandy, as an industrial region, has significant strengths: low-carbon energy, expertise, strategic sites, and more. Based on the hearings conducted, the Region must play a leading role in defending its interests at the national and European levels, in order to preserve this ecosystem and position the territory as a hub for experimentation and innovation in greener, more sustainable mobility.

2025 December

Exposed by **Pascal Giloire**

With the contribution of **Pierre Allain**



CONSEIL ÉCONOMIQUE SOCIAL ET ENVIRONNEMENTAL RÉGIONAL

Caen Abbaye-aux-Dames

CS 30529 - 14036 CAEN - Cedex 1

Tél : 02 31 06 98 90

Rouen 5 rue Schuman

CS 21129 - 76174 ROUEN - Cedex

Tél : 02 35 52 56 30