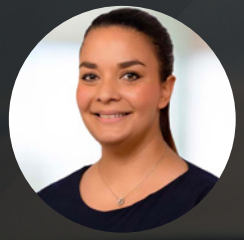
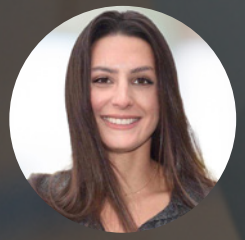
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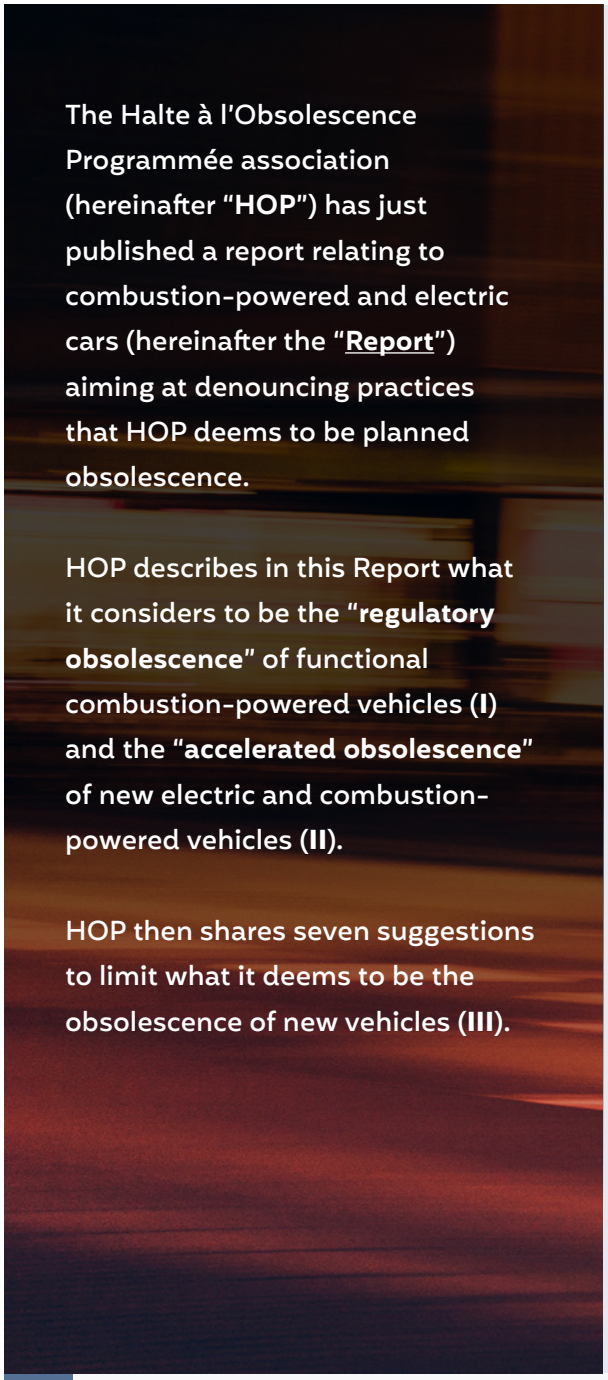
What to learn from their report about combustion-powered and electric vehicles



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Matilde Font



The Halte à l'Obsolescence Programmée association (hereinafter "**HOP**") has just published a report relating to combustion-powered and electric cars (hereinafter the "**Report**") aiming at denouncing practices that HOP deems to be planned obsolescence.

HOP describes in this Report what it considers to be the "**regulatory obsolescence**" of functional combustion-powered vehicles (**I**) and the "**accelerated obsolescence**" of new electric and combustion-powered vehicles (**II**).

HOP then shares seven suggestions to limit what it deems to be the obsolescence of new vehicles (**III**).

"The regulatory obsolescence" of functional combustion-powered vehicles

A. Regulations and public policies of the automotive sector

The European Green Deal forecasts a 90% decrease in greenhouse gas emissions. This ambition, confirmed in France with the 2019 French mobility orientation law, suggests restrictions for combustion-powered cars (1) and incentives to switch to "low-carbon vehicles" (2).

1. National and European standards governing the road sector

HOP reminds in its report that, over the last few years, several measures were implemented on a French and European scale to reduce the environmental and health impact of road transport.

Firstly, one of the goals of the 2019 European Green Deal is to reach carbon neutrality in the road transport sector by 2050. This European goal has been confirmed at the national level through the adoption of the 2019 French mobility orientation law. Moreover, the 2019 French mobility orientation law and the 2021 climate and resilience law introduced Low Emission Zones (hereinafter "LEZ"), zones in which traffic is regulated, or even prohibited for some highly polluting combustion-powered vehicles. The creation of LEZs introduced the obligation for drivers to stick a Crit'Air sticker on their vehicles, and traffic bans for some highly polluting combustion-powered vehicles in some cities, depending on whether they are classified as (i) conurbations in LEZ territories, (ii) conurbations in vigilance territories or (iii) optional LEZs.

Furthermore, three European standards in particular set the judicial framework for tomorrow's vehicles:

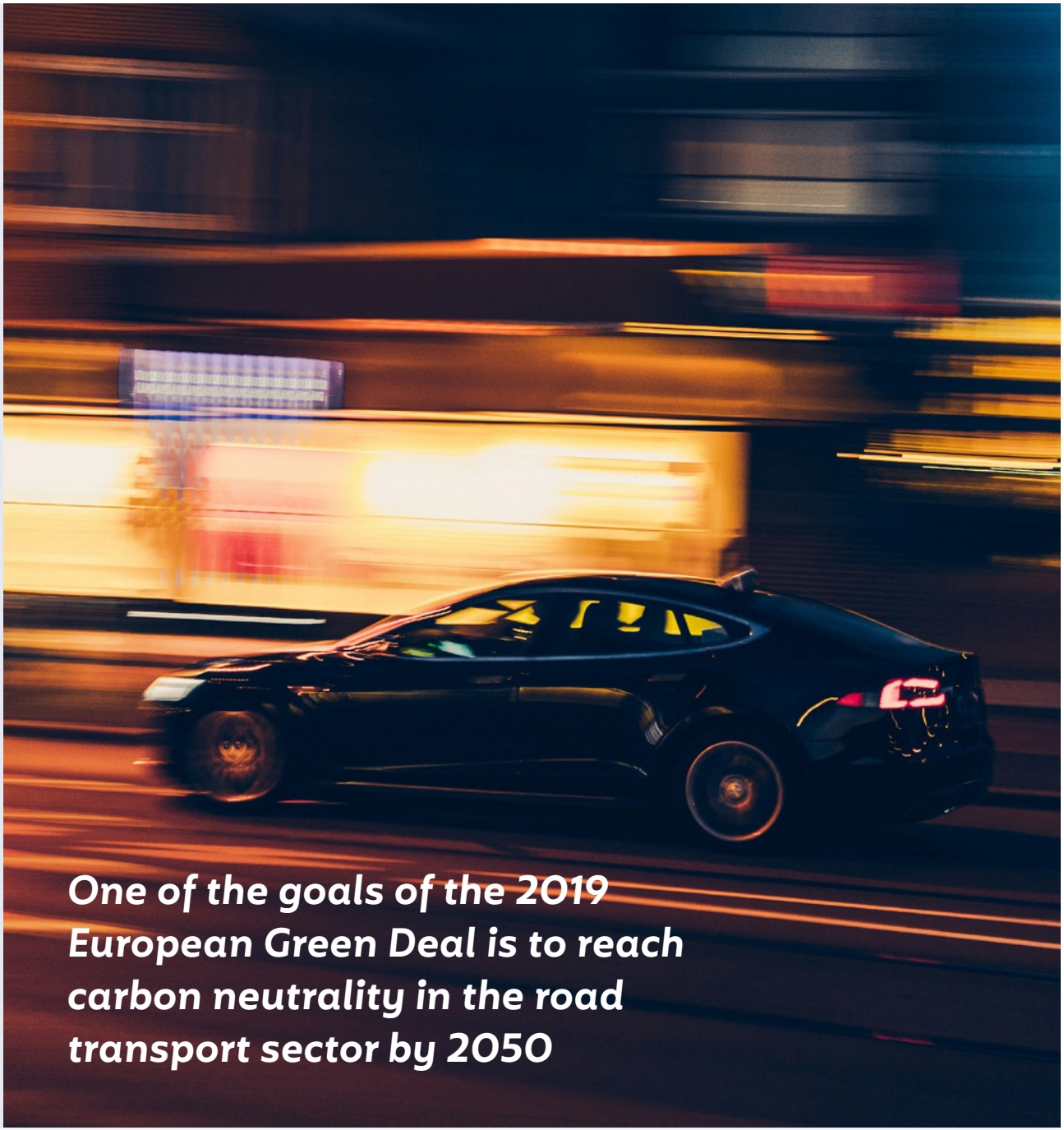
- The Fit for 55 European Regulation provides for the ban on the sale of new combustion-powered vehicles (i.e., diesel, petrol, and hybrid) from 2035, without, however, prohibiting the use of vehicles bought before this time. This Regulation could be alleviated by the production of carbon-neutral fuels.
- The CAFE (Corporate Average Fuel Economy) European Regulation sets a limit of CO2 emissions per kilometre for the average personal car sold by each manufacturer, to support electrification amongst car manufacturers.
- The Euro 7 standard keeps the same criteria as the Euro 6 standard and introduces emission limits for pollutants coming from brakes and tyres and takes into account the lifespan of electric vehicles' batteries.

2. Incentives for the electrification of the existing vehicle fleet

Various measures have been adopted to accelerate the renewal of the car fleet in favour of electric vehicles, even though combustion-powered vehicles are still functional:

- The ecological penalty aims to discourage people from purchasing combustion-powered vehicles through a tax on CO2 emissions and a tax on the weight of the vehicle if it weighs more than 1,600 kilogrammes.
- The ecological bonus offers a reduction of between 4,000 and 7,000 Euros on the purchase or lease of a new electric or hydrogen car.
- The conversion bonus is an additional aid to the ecological bonus, depending on income, and is conditional on the scrapping of a car considered to be polluting (namely, Crit'Air 3, Crit'Air 4, Crit'Air 5 vehicles) and on the purchasing of a new car eligible for the ecological bonus.

Lastly, other indirect aids can also be offered in addition to those mentioned above, such as the microcredit for clean vehicles or the LEZ zero-rate loan.





B. The “regulatory obsolescence” of the automotive industry

To introduce this concept of “regulatory obsolescence”, HOP explains that several regulations are unsuited to the risks that the automotive sector would represent.

These regulations would notably relate to:

- **Health risks** – HOP indicates that pollution by fine particles and nitrogen oxides (NOx) has an impact on the risk of cardiovascular and respiratory diseases with serious consequences for health, leading to thousands of deaths each year.

- **Environmental risks** – HOP believes that throughout their life cycle (manufacture, use and end of life), road vehicles generate pollution or impact resources, such as energy consumption, greenhouse gas emissions, soil and water acidification, eutrophication of terrestrial and marine environments, and depletion of natural resources.

In terms of economics, HOP establishes a comparative overview of combustion-powered and electric vehicles. Firstly, it explains that the cost of a vehicle includes various elements throughout its life: initial investment, insurance, fuel or electricity, maintenance, depreciation, and other bonuses or penalties. Comparatively, electric vehicles would seem to generate costs mostly during the manufacturing and purchasing phases, with potential savings on energy and maintenance over the long term. However, **the benefits of going electric would depend on the number of kilometres driven**.

Regarding combustion-powered vehicles in particular, HOP indicates that the introduction of LEZs has necessarily led to an electrification of the vehicle fleet (with many combustion-powered vehicles no longer being able to travel) but would raise questions about **their end of life**. However, for now, this new Regulation would have had a limited impact, given the considerations linked to social inclusion issues, the improvement in air quality in certain cities, enabling to reduce their obligations regarding LEZs, and the limited number of controls.

Likewise, HOP reminds that the ban on the sale of combustion-powered vehicles by 2035, should, according to the French Agency for Ecological Transition, enable electric vehicles to make up 20% to 40% of the vehicle fleet. Nevertheless, the complete disappearance of combustion-powered vehicles is not expected until 2050 according to this same Agency.

The benefits of going electric would depend on the number of kilometres driven

While HOP seems satisfied with this estimation, it points out that the scope of application of the European Regulation on the ban of combustion-powered vehicles in 2035 only concerns the sale of new vehicles. Yet, in 2023, two-thirds of new registrations were **second-hand vehicles**. According to HOP, it seems necessary for vehicles to retain a residual value to support this second-hand market. It raises questions about the longevity of electric vehicles, which need to be addressed by the automotive sector.

Furthermore, the size of the second-hand market in the automotive sector would make it possible to consider the retrofit solution, which would enable **a combustion-powered vehicle to be converted into an electric vehicle**. However, the cost of such a conversion would be the main obstacle to the implementation of such a solution, despite the existence of subsidies.





II “The accelerated obsolescence” of new combustion-powered and electric vehicles

A. The relative durability of an electric vehicle

The transition from combustion-powered vehicles to electric vehicles represents a significant change in the complexity of components and maintenance requirements. The report looks at the reliability of combustion-powered vehicles (1) and particularly the battery “irreparability” issue (2).

1. Relative reliability of an electric vehicle

HOP explains that electric vehicles would require fewer repairs, but that the cost of such repairs would, on the other hand, be higher than for combustion-powered vehicles.

Moreover, the battery's lifespan is a crucial factor in assessing the viability of electric vehicles. Lithium-ion batteries, the core of these vehicles, have an estimated lifespan of between 1,000 and 1,500 cycles, namely 15 to 20 years of average use.

Furthermore, HOP explains that, according to most of the professionals that were surveyed, **the lifespan of electric vehicles' batteries** remains uncertain, and connected to numerous factors such as temperature, frequency, charging power, and vehicle immobilisation. Fast charging, for example, would be likely to reduce the number of recharging cycles, thus compromising battery durability.

Therefore, while repairs are less frequent on electric vehicles, batteries and their associated electronic components would still need maintenance, repairs, or even replacements. Technicians have identified, in particular, that the most frequent breakdowns are of an electrical, connections or chemical nature. However, to rectify these breakdowns, it would be necessary to **conduct more operations than on a combustion-powered vehicle**.

2. The irreparability of an electric battery

A battery is repairable if its modules can be replaced individually. This repair requires specific skills and has therefore led to the creation of new professions, such as electrotechnician. Manufacturers are also investing in battery diagnosis, repair, and reconditioning workshops. According to HOP, despite this progress, the independent repair sector would not have fully adapted, with less than half of workshops accepting electric cars.

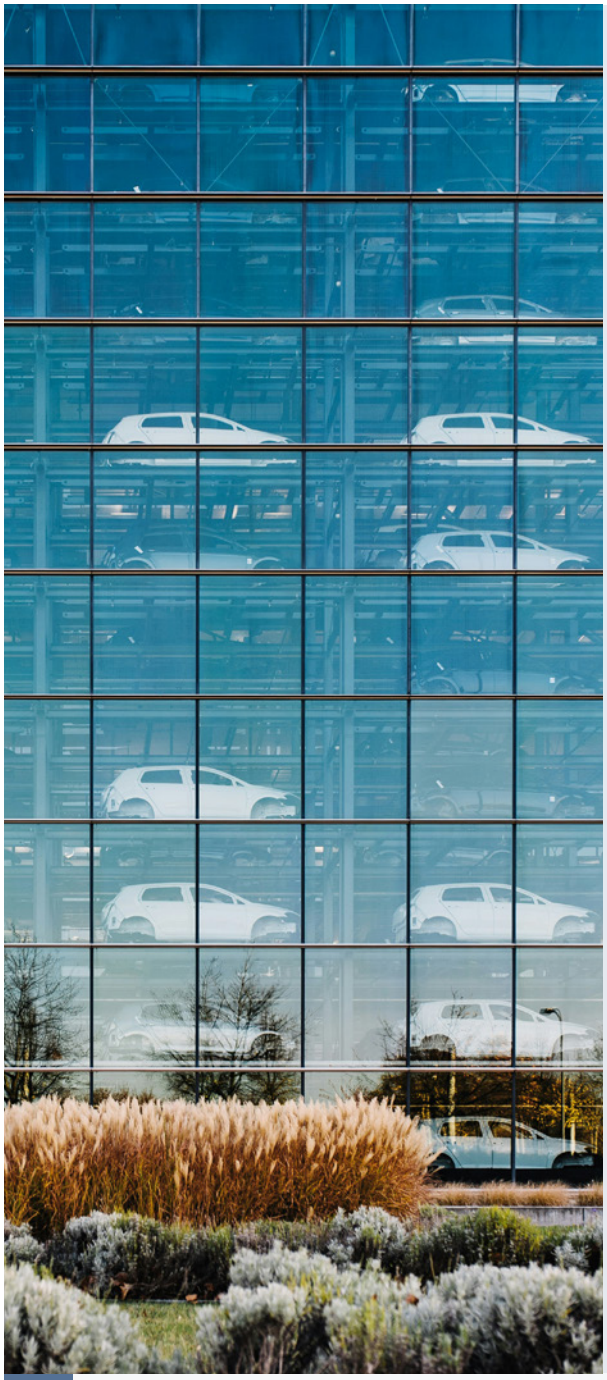


Technicians have identified, in particular, that the most frequent breakdowns are of an electrical, connections or chemical nature.

The fact remains that, according to HOP, manufacturers specialising in electric vehicles are opting for **so-called irreparability practices**. The following example is provided to justify such a claim: the sealing of battery covers with silicone or resin that would complicate, or even prevent, the replacement of the battery's modules. Manufacturers justify this practice by claiming that it is a compromise between the battery's repairability and the production cost, highlighting the increased reliability of batteries through these materials. However, according to HOP, some Experts argue that it is possible to design batteries that are both reliable and repairable by screwing the covers shut instead of gluing them, thus allowing easier access to the modules for repair purposes.

Furthermore, although the battery in an electric vehicle is considered a spare part, there are currently no legal provisions requiring the availability of parts for several years, raising concerns about vehicle repairability. **The lack of standardisation of batteries** and the fact that they are produced over a limited period would also make it difficult to replace them with the same model when needed, although some brands offer reconditioned batteries. When the original battery model is no longer available, an alternative would be to conduct an upgrade by replacing one or more of the vehicle's components with those of another model.

Lastly, HOP explains that there is a legal loophole regarding the batteries of electric vehicles, as they are not included in the European Regulation relating to batteries dated 12 July 2023, or in the Ecodesign for Sustainable Products Regulation. Although a draft regulation on vehicle circularity was suggested by the European Commission in 2023, it currently only provides for the obligation to be able to remove or replace batteries and engines of electric and combustion-powered vehicles, with no guarantee of repairability.



B. The irreparability of combustion-powered and electric vehicles

The possibility of repairing certain parts of a vehicle is being questioned by the arrival of a new practice known as "gigacasting". This is a practice which would consist of producing a large part of the car from a single block, using a mould designed for this purpose. Consequently, in the event of the slightest impact, such a large part of the vehicle would have to be replaced that it would probably be more profitable to scrap it.

Accordingly, there would also be the "**megacasting**" practice, the purpose of which is to replace several parts with only one. These techniques enable car manufacturers to make savings of several thousand Euros per car. However, at this stage, the cost of the machines required for these practices is such that they are currently mainly used for electric vehicles, but could, nonetheless, also be used for combustion-powered vehicles.

Furthermore, according to HOP, manufacturers are gradually **restricting access to spare parts**, which would make it harder to repair vehicles. This tendency stems from the decrease of maintenance needs, encouraging manufacturers to neglect efficient after-sales services. Although this reduces costs, it would compromise the availability of spare parts at reasonable prices and within reasonable timescales, which is essential for vehicle repairability.

Currently, there is no European Regulation compelling manufacturers to supply spare parts for a defined period of time. That being said, since 2017, consumers must be informed about spare parts from the circular economy. According to HOP, automotive repairers do not seem to always comply with this obligation. Some sectors, such as the tyre sector, still need development to enable second-hand parts to be reused.

Recycling objectives could also compete with other pillars of the circular economy, such as repair, reuse or reconditioning regarding end-of-life vehicles. Indeed, the current judicial context seems, according to HOP, to favour recycling to the detriment of the right to repair end-of-life vehicles.

C. The limits of connected cars for durability

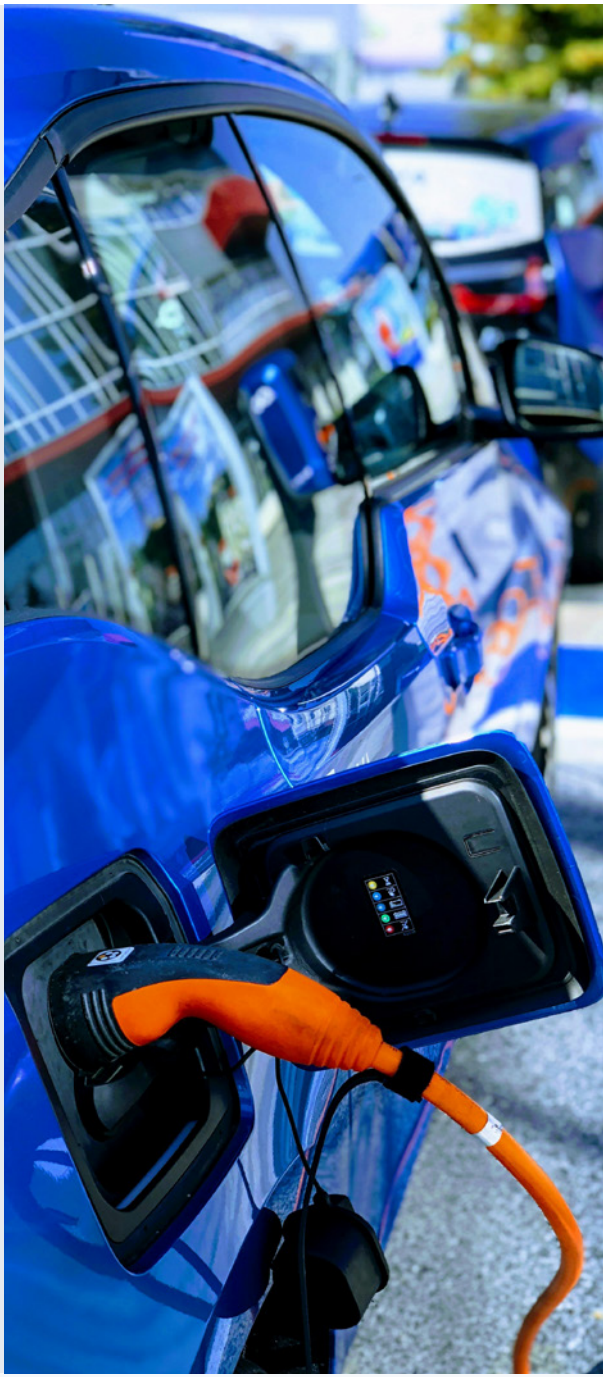
While it acknowledges the advantages of cars being increasingly more connected (such as improved protection against theft, better understanding of incidents, and improved vehicle reparability), HOP denounces the disadvantages of this connectivity.

According to HOP, the **electronification of vehicles** has advantages in terms of repairability and progress, but also entails new challenges. It would lead to an increase in repair costs because of the need for specific technical skills and access to manufacturers' software, as well as the obsolescence of different electronic components. Moreover, the insertion of these components into single pieces to reduce manufacturing costs would increase repair costs.

Serialisation, which electronically locks certain parts to a specific vehicle, would also impact repairability in two ways, according to HOP: it limits reuse and makes vehicles incompatible with second-hand parts. The practice of virginisation of parts would often be required to avoid these issues. One solution that is suggested is to use sets of parts containing the same electronic components as the original parts, without the software limitations.

The risks associated with software obsolescence are also mentioned. HOP's main concerns relate to the alleged lack of software maintenance throughout the vehicles' lifespan and the possibility of reducing performances after updates, to push consumers to buy new vehicles. Only strict regulations could limit these risks.

Lastly, the electronification of vehicles would lead to a monopoly of data ownership, which could encourage **anti-competitive practices** by manufacturers, such as monetising data at arbitrary prices for independent repairers or blocking certain data outside the manufacturer's network. A recent study by the International Automotive Federation highlights the potential significant losses for the aftersales market if this position is not balanced. Therefore, many companies are campaigning for more balanced access to data for all stakeholders, enabling users to have access to their data and to share them freely with third parties to benefit from their services.





III The association's suggestions

In light of these new challenges, HOP has drawn up a list of seven suggestions designed to limit the obsolescence of new vehicles:

- **Incorporate standards for the durability and repairability of batteries in Europe:** HOP would like regulations enabling (i) parts to be available for 20 years, (ii) parts to be standardised and (iii) open-source 3D printing to be used once the legal availability period has lapsed;
- **Ensure that vehicles can be dismantled:** HOP wants to put a stop to the so-called mega- and gigacasting practices;
- **Support the market for spare parts in the circular economy:** HOP recommends starting discussions to consider solutions such as (i) a deposit on spare parts, (ii) an extension of the 1-for-1 take-back model and (iii) the development of the standardisation of parts and components;
- **Offer a repairability index:** HOP recommends the implementation of a repairability or even durability index, to protect consumers and improve design practices;
- **Extend the legal vehicle warranty:** HOP would like to see the legal warranty on electric vehicle batteries extended, with repair taking precedence over replacement;
- **Prevent software obsolescence in vehicles:** HOP is in favour of adopting preventive standards to (i) prevent serialisation practices, (ii) fight against software obsolescence by guaranteeing updates for 20 years and (iii) by guaranteeing drivers' access to the data of their vehicles to promote repairability; and
- **Regulate channels to prioritise repair and reuse:** HOP would like to see a hierarchy of waste levels in the following order: prevention, reuse, repair, reconditioning and then recycling.

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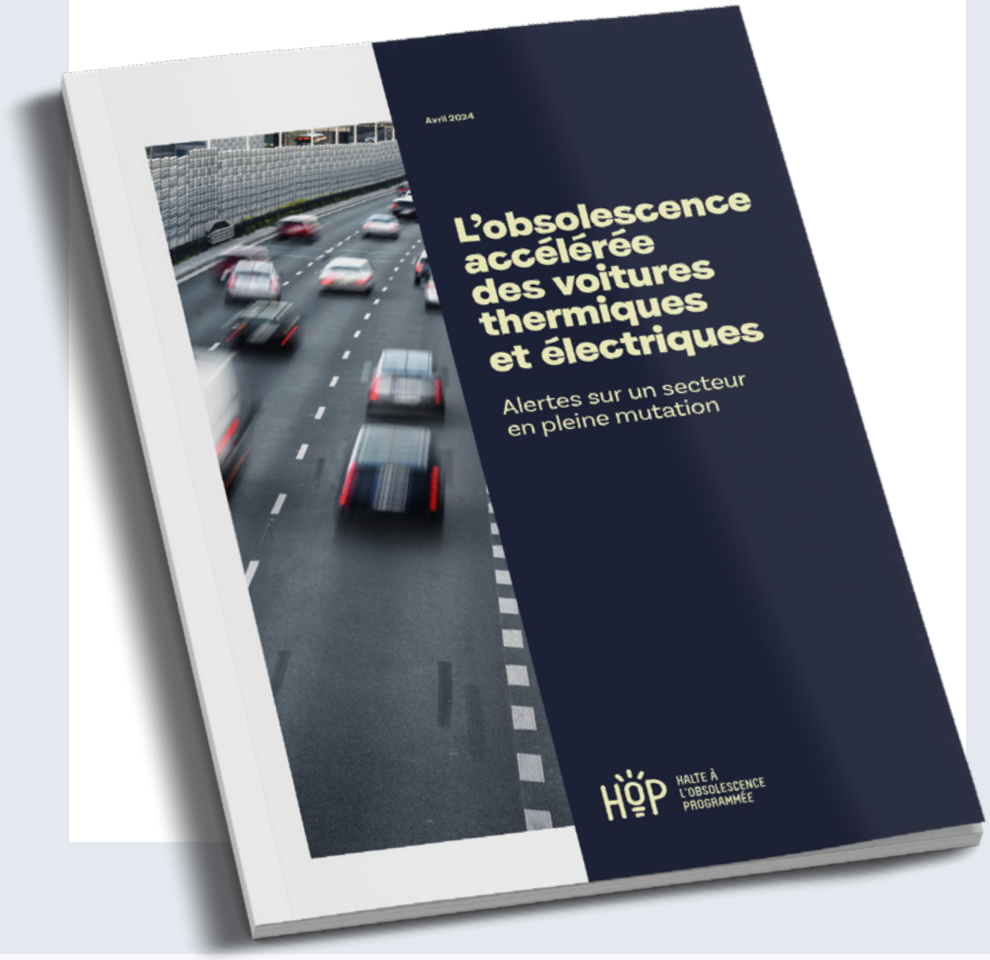


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Links:

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